COMPUTERWORLD

Microsoft to embrace TCP/IP

with the next releases of the Windows NT and Windows for Workgroups client/server family expected to ship by midwear. Microsoft Corp. will finally get se-rious about TCP/IP — and not a minute too soon, users and ana-

In a major chift the Redmond Wash wonder has quietly adopted TCP/IP as its enterprise networkinstructional of choice positioning its old networking standby Net-BIOS for small worksmann I ANs only said Ty Carlson, TCP/IP produet manager at Microsoft

This is an essential move for Miomenit "if it wants to position NT oc on entermalise scients and Windown for Work groups as a companumido collaborativa system said Rick Villars, a director at research firm international Data Corn in Framingham, Mass, "Net-DIOC fort description in the control of the control protocol: it close up the network and moters can't deal with it

Promised resolution

Apart from no longer having to use NetBIOS, users said what they particularly like about Microsoft's embrace of TCP/IP is its promise to solve the internetworking protocol's lack of dynamic addressing capabilities. That has long been

TOP IP is the nestood of choice TOTAL IN THE PROTOCOL OF CHANGE have a mix of Univ VAXe 18M hosts and ST company said Tone Deficient manager of missesses. personal, manager or incrocousputer systems and communica-Dus TOO IP's lack of dynamic addressing capabilities makes administrating a large TCPIP act

Missourch more 15

work time-consuming, he added. Development strategies

Chicago may overshadow NT

and Ed Scornoll Microsoft Corp.'s most formidable

year or in early 1995.

application rivals appear to be looking past Windows NT to what they see as more juggative opportunities in the Windows 4 ft groups But Microsoft's applications division or following its evidence group's advice and writing Windows NT applications first. While these applications will run on Windensy 4.0, they will not take advantage of all of its unique features.

marine of with a pull Windows 4.0 also known as Chicaso, is expected to ship later this

with applications written appendi wite approactions written specialgo's features, officials said last Microsoft officials indicated

that it is likely that pages who hay an NT-compatible application first will not have to have a senarate version to take full advantage of Chicago. But they may be offered upgrades in the Chicago appli-

Ret some of Microsoft's main on. plications competitors said they will wait and develop solely for Chieses because they want to focon their efforts on garnering a Chicago, page 10

PC servers close in on mini rivals

Vendors start to nlug systems management gans Ry Wichael Fitzmenkfund Stochen P Klett Jr.

PC server makers, having pronounced then selves ready to replace the minicomputer for the next fire years, been finally forward out how to do it But holes in critical functions such as backup and current management and the complexity of internating software and hardware pieces continue to make domestring to BC untipaces continue to make to

Recent developments by somer makers show promise, including the following moves: Not Prame Systems. Inc. will above a tane subsystem that backs up data at a rate of 126 byte/honr a speed more typical of minicomputers, this week at Networks Expo '34 in Boston

(see preview of show page 14) Dell Computer Corp. will demonstrate its new Downer dem commerce which are the first to offer a minicomputer-class digital audio tane drive that can back undate at a rate of 9G byte hour. That is much greater than the typical PC performance of its to 2G byte/hour

*Compag Computer Corp. is investigation what role it plays in the market for bubs, routers bridges and other such enterprises ide communication declare intermal courses said PC servers, page 12

The Redmond, Wash, company IS can control Internet surfing, misuse



As more and more mainstream hosiness. es book up to the inter-

net' employees are muning access to a mindbourting array of information months before the material would otherwise become public. This includes software tips, patents, citylronmental regulations and research papers Users are also exining access to lengthy dis-

cussions on tasty recipes, shock-jock Howard Stone was control shois lettone Stan Trok and sevent featuries. A worldwide internet overs

0017

0012 6 XC

about who should clean the office collegeot yielded 30 responses in a matter of minutes.

Florimale discussion groups and mailing lists in extenspace including the internet. Usepet and Sitnet - range from acquired immune deficiency syndrome to windsurfing, from the useful to the bizarre. Will employees waste company time on the alternative news group called alt.sex. fetish feet

To smald such dallisances, costsnamine chould extablish an Internet access tool

icy similar to the policies they have regarding personal phone calls, moonlighting and breaks at the watercooler, internet experts say, because the internet is the latest forum for doing things other than work

Ensuring that employees make productive use of the Internet is actually inst one of the management challenges involved in the rush to

Internet, page 26

Client/server tips



plication partitioning got you do There are several ways to skin that uply beast, including - paspl - CASE

One user, Lt. Col. Bert Dollahite, an Army technology chief, swears by the flexibility of distributed objects. -See IN Depth PAGE 101

SEMBRIFTESSESSESSESS 5-DIGIT 48103 #LITU77F300M099039# UNTUERSITY MICROFILMS INT UNIVERSITY MICROFILMS INT SERIAL PUBLICATIONS 300 N ZEEB RD

ANN ARBOR

MI 48103



CW GUIDE TO NETWORK MANAGEMENT

· Management platforms such as Owner Com Not Manager and NotView 9000 claim to be unforprise managers ... but they've not

Network management is expensive, with systems and personnel accounting for the highest cost Accounting to

Done 15

eftennes fills out its messaging strategy by

buying Reyond Proge 4 The future of PDAs may rest in portable smart phones rather than today's Message-

Pade Bross wiBM makes large-scale push for imaging.

soft is expected to play in the last key module of its Office nuite upgrade when it white the OLE ? (Learnestible version of Present bini to recognithing month floor (2) ■Digital sites aren't pleased with the limited

so arbedule for Dirital's implementation of IBM's NetView/6000 Page 14 The latest security breach on the internet

opens corporate eves Page 14

HP plans to migrate some distributed computing features of its Apollo/Domain workstations to the HP/UX operating system. HP place plans to provide the MPF/IX operating system with links to Daily and Windows NT Drose M.

BCA lave out plans to more host-based soft ware such as CA-IDMS and CA-Datacom to Univ Street

Digital tries to turn its elient/server software framework into reality with a balch of product introductions. Page 24

DECKTOR

Watch for war between the alliances of IBM and Apple, and Microsoft and Intel Page 39

WORKSPOUR

a Document management systems p on the product and user fronts. Page 57

ENTERPRISE NETWORKING

aVendors and users try to get logether on enterprisewide licensing issues. Page 57

I ADGE SYSTEMS

Diary of a disputer recovery: Getting the system back in shape after an earthquake. Page 81

APPLICATION DEVELOPMENT

ellow record with numbers outer as Knowledge Ware dispressites into client/serv. artook (bas 7)

MANAGEMENT

There are some surprising books on the read-Incidents for CIOs. Page 80

Some companies have found the way to parcel out application code between client and server Page 101

CAREERS

Programmers moving into C environments may learn that there are tricky to making their

code medable Bros (0) MARKETPI ACE

Rowsen of price shark. ing by VARs who may one methods such as hiring in. plot staff mombour to col

COMPLITED INDUSTRY

s John Sculley and Spectrum have parted ways at least until the court date. Place 30

COMMENTARY

south Barn 114

etS executives need to see earthquakes and blizzards as justifications for telecommuting. according to Michael Schrage Page 35 RIII Laboris says it's time for the companies that pay the bills to write the rulebook on Inter-

net use Page 34 Beware the folly of benchmarks. Ben Rothke

warns. Page 35 ■Workflow systems, big and small, can bring

benefits, Charles Babcock says. Page 6 «Nark Halper looks at the games vendors play with transaction numbers Fuor 61

Company Index Page 129

Editorial/Letters to the editor Page 34 Friday Stock Ticker

Executive Briefing

Employee surfing on the Internet could be a big time-waster but mon-nomination could be counter productive too As mainstream businesses ticinto the Internet they are discovering compley manage ment icense. Some are establishing Internet policies similar to those for personal phone calls and noncompany work. They are also installing "firewalls" that limit Internet backers' access to coffuend distributed on the Internet Page I

At long last love? Recent surveys by Andersen Consulting and planty of anadotel avidance show top management still dissertisfied with information took. nology investments. But take heart: An MIT study found a 64% return on investment on information technology investments in the manufacturing and service sectors. And there are many other reasons to believe that the relationship between IS and ton management is maturing Page 89

After five years of proclaiming themselves ready to replace the minicomputer, PC server makers appear to be figuring out how they can actually offer minicomputer functionality. However, there are still pitfalls in the journey from minis to PC servers, such as the lack of backin and systems management software. Proc 1

A survey of Research Board members suggests the high cost of maintaining client/server systems is driving some large users to reconsider mainframe and server cluster solutions. One factor in that Irend is that costs are dropping for mainframes and telecommunications. Meanwhile Meta Groups makets note that the move to re-engineer mission-critical mainframe applications will be gradual. Page 8

If muffler shops and late night TV huckste offer guarantees, why can't IS consultant Some firms have begun to adont the idea, and several kinds of guarantees are now being offered. But others say the only true guaran-

too in twent there ?? Suprantee on

Mid-Ad

West C



The information superhishway, high-tech grants and sys named at reinventing government are winners under President Clinton's budget plan. Sonce programs and atom smashers are among the lovers. Page 4

		٠.
How to contact Comput	TERWORLD EDITO	DESAL:
office, Framingham, Mass.	PHONE: (soil) 870-0700	FAX: (508) 875-893
hour tip line	(508) B20-8555	
riantic bureeu, Rochelle Park, N.J.		
ngton bureau, Washington	(202) 347-0134	(202) 347-236
nt bureau, Des Plaines, Iff.	(708) 827-4433	
Coast bureau, Burlingame, Calif.	(415) 347-0555	(415) 347-683

OF BY BUCKMONE, MAIL: Computenced's writers and editors have individual MCI Mail accounts Mont of our staff members can be reached on MCI Mail by addressing messages to their filest and last' names as they appear on the masshees For a complete list of elidatisi MCI Mail addresses, cell (soft) 820-8356. Our CompuServe account number is 76537,2413. Please use that account only for communications with writers and editors. Direct subscription inquiries to CompuServe: 73373,1230.

cr Suscentines: Inquiries and changes of address should be sent to P.O. Box 2043, Marlox, Ohio 43305-2603 or call (800) 669-5002. serts: Contact Sharon Bryant at (508) \$20-8125.

Move to client/server Faster

...with SyncSort for UNIX.

FASTEST UNIX Sort Execution.

Whether you're sorting Megabyte or Gigabyte size files, SyncSort for UNIX will save you time

FASTEST Mainframe to Client/Server Application Conversion.

Our NEW "MVS to UNIX Sort Converter" software makes moving MVS applications to client/server faster and easier.

FASTEST Response to Technical Questions.

Our technical consultants are available 24 hours, 7 days a week to speed your move to client/server.

FREE CONVERSION SOFTWARE

Call now for more information about our NEW "MVS to UNIX Sort Converter" Software Offer. Limited time only—\$3000 value.



CALL TODAY 201-930-8200, Dept. 121



Banyan to buy Beyond

Purchase will enable it to fill out messaging strategy

Banyan Soutema Inc unid last week it will murchase Beyond, Inc. for \$17.5 million to fill out its parameters accommend of standard Recognitional will play front end to Banyan's own Intelligent was puty trust end to nanyan a own intering In addition. Banyan plans to incorporate RecordMail's releadment formacouting and workflow technology into a revamped, unbun-

dled version of its measurater portfolio which is expected to ship this snowner expected to snip this summer. Westborn, Mass-based Banyan will unbun-Westooro, Mass. Genera panyan was suous pletform and offer them so add one to back and parties from Marrill Inc. and Minney & Com-

unid Bill Johnson Banana's view remident of product marketing These add-on services will include server to server connectivity and afeb. al dispetant into matter Description of the second

based on rules such as the order of people signinstall on a decomment

ne it toesthor

Banyan has no plans to provide measuring ser views for Lotus Development Curp.'s Lotus cation Server (LCS) electronic-mail back and Johnson said at least north because of I CV long chinmont lead time. However Boyend's Messaging Application Programming Interface support should epuble BeyondMnii elients to access LCS, a Lotus spokesman said.

"Banyan is the only one powiding the give to mix and match services across a range of leading server platforms. "while Microsoft and Novell still want to be king at the other (vendorn'l expense," said Robert Sparre, a project network analyst at Delmarva Power & Light Co. in Namente Del

These value added offerings are central to Banyan's plans to establish itself among comcontinue that have about about Named on Mi creand as their primary enterprise source providone Johnson raid

But Banyan will need to assure its exclomers that relationships with E-mail front-end value-

¥ 400 k hot A.---notes announced up T con mercanina tack nations from Date Co. noingly more users conformer in the recomming

LCC Dear Countries alto permitter the V -m technology that Microsoft is union in its Server on the rivate recover a belief the while 6-16-2-1-0000 pc 90 change messages us

ise X annimosoph. sediam/rume vo mescaring and makin computing Lanuaria

targeting a first number some shin data Course widout

Inc. and Valley Com inc. and recurrences politica Therm waters competition because of its placer ties with

Bewood Sparre said Such front ends um for more intermeted with late Woman Man sucted then Brands compatible according to Pourse

For example "RecondMail does not use Vince' movement storage facility' and under takes message and of Vines' secure Unity faeth its and must them in a number DOS file. "where and particular in a regular courter, where

14. To remedy this, Banyan plans to provide a version of Intelligent Messenting with a most com store that corporate Poster/Meil 70 nocurding to Johnson. The product is slated to whin he made war

In addition, Renyon said it will continue working to more furbily interrate Record's F. mail client with Novell's back-end messaring systems and will develop the elient for Micro



soft's feribeoming messaging server. Indeed the ResondMail ellent software of nady man on Norall's Global Mayorett Handling System (MHS), and the "bulk" of the Beanneithed environment operate on top of MHS a Percent analysis and a said

For instance Wayne Sadin a chief techniony officer at Michigan National Bank in Lansing Mich is installing Reyard Mail on anarov. imetely 1 700 Noonli NetWate/Global MHS nsers' desktons Rather than feeling threatened by Banyan's purchase of Beyond. Sadin said he is relieved. 'It's always good to hear that a small company has a parent with does pockets because then they have more money fordevelopment."

Mac nicks un E-mail clients

pole Computer for 's PowerPC Marintosh will soon have the support of two major electronic mall wendors, Lotus and WordPerfect Corp. plan to deliver E-mail clients for Apple's PowerPC shortly aflor that platform's planned March 14 ship data accordor in sources close to the com

PowerPC is the new RISC CPU that Apple IRM and Motorola, Inc. are igintly developing. Lotus will announce this week that it will port its CC Mail for Macintosh to the Apple PowerPC platform, which runs the upcoming System 7.5 operating system, and deliver the product within 30 days of the PowerPC ship date, according to a source ciose to the company. However, the source did not know of any plans to port CC:Mail to run in native mode on on erating systems for the IBM version of PowerPC. Those

include Workplace OS, Taligen I, AJX, Windows NT and Solaris, Lotus had no official con

WordPerfect also plans to deliver in April or May a year sion of its Office E-mail software for Apple's PowerPC, a company spokesman confirmed Like Lotus, WordPer-

fort has no plane to port E-mail to the IBM ProtecPC but WordPerfect has not ruled it out, the spokesman said

In response, Microsoft restated that it is porting Win down NT to IBM's PowerPC architecture, but a spoken women was unclear about plans for porting the Microsoft Madi client to System 7.5 Dean McCarron, an analyst at Morcury Research in

Scottsdaie, Arix, downplayed the importance of vendors porting their applications to Apple's PowerPC and not IBM's because IBM in further behind in development. "You can't develop software for a bardware platform that doesn't exist," he said. "Ultimately, users are going

to move to whatever the higgest hardware platform is -Landa Radosevich

added resellers such as LANshark Systems. Fed budget proposal kicks in extra grant, technology funds

By Mitch Bette

Taking advantage of deep cuts in space programs and alom amashers, the Clinton administration last week proposed a federal hadest that charmly boosts enending on advanced technology grants, the data superhighway and key information systems for the "reinventing government" movement. The fiscal 1995 budget proposal, which must still wind its way through Congress, clearly shows the clout of Vice Pres-

ident Al Gore and highlights his pet projects. The budget proposes spending \$1.5 hillion on healding the National Information infrastructure a 32% increase over last year Systems that improve government efficiency or public service may get a lot of visibility, but there is not much

growth in federal fS spending overall, said Steve LeCompte. an analyst at International Data Corp.'s IDC Government unil in Faits Church, Va. He said one reason for the shaggish growth rate is that

the energy, defense and space agencies face tighter budgets.

Footing the bill

			Percent
Total research and development	\$68.58	\$718	4%
Netrolegy baseler	\$551M	\$865M	57%
Deal-one lechnology	SaB	\$2.18	7%
Manufacturing ladhelicty extension	\$1.98	\$2B	10%
Rational information	Sofulk	\$1.18	22%

The 1995 budget document highlights the importance of any system that fits Gore's "reinventing government" intistive. The Internal Revenue Service's database modernization program, which will eventually allow IRS customer service arents to answer all sorts of taxpayer outries in one call is schooluled to receive \$992 million a 43th increase The budget also proposes \$280 million to re-engineer the Social Security Administration's systems for handling disshillity claims in hones of allevinting backlors.

NIST doubles the pot

One his wanner in President Clinton's hudget proposal is the National Institute of Standards and Technology Its Advanced Technology Program, which gives grants to commercial research and development ventures involving computers and electronics, would get \$451 million - more than

double its current budget The Clinton administration's interest in crime-lighting led it to request \$100 million for upgrading criminal justice information systems as well as \$93 million for the Federal Bureau of Investigation's new fingerprint imaging system. The flip side is that the proposed budget is counting on the savings expected from re-engineering projects.



Remind You Of Your Warehouse Management System?

Trade Up To The Ultimate Warehouse Management Software For The AS/400. Meet the new Boss.

New CA-Warehouse Boss: The software that can im prove your bottom line.

It's the only totally integrated warehouse management software that enables everything you've got to work together - Scanners, RF, Conveyors, Pick-To-Lights, etc. The Boss is the "central nerve center" that tracks every detail from arrival through departure. It assures complete in



through cycle counting or physical is And advanced pick planning, such as batch wave or order pick, optimizes your labor usage.

So customers get the right orders. Every time. The Boss is built using an advanced architecture so it an grow with you without costly custom programming Call 1-800 CALL CAL

Ext. 150 for more information and a free Demo Disk of the software that can turn your



New CA-Warehouse Boss

Wonderful world of workflow

down on among and cours bear deads of the course of the l lers contribe way you used to do things. The most dramark overrise way you used to do things. The most dratown but you make a few start and a self-relative to the said terms, our you may wi

Pank One in Indiananalis for contends described and the cost of administering loans from \$78 per employee to \$65, with a further ing each small reduction amounts to hig savings

The state of Delegants famous for chartering compositions int he state of Designary, tamons for courtering corporations, intom allowed the somey to eliminate \$200,000 in annual experime expenses reduce full-time employees from 100 to 80 and still handie a 18% increase in corporate restatrations in 1963. The depart. must enunde \$4.5 million to being in \$200 million in resource sold

administratus Mishael Orman Scolobility of work flow systems is important If inabout a time the floor and violes his oning then de mand will nick an for follow on efforts Bank One having ent \$10 million on Mr Pile. et lose administration sys tem is about to invest anoth on \$5.2 million on a loan er ava minor ou a par eveten will enable different and in toward or a loan

concurrently cuther than so.

entially then by speeding



on Bánk One's resionse line, predicted David Aktridge, ehief technology officer

To reinforce its system's longevity, the Delaware agency must now migrate its workflow system off Wang VS 12000s to Hewlett-Packard HP 9000s rit will continue to use Wane's Open Workflow software), a difficult move in the face of rapid growth, Owens said. Owens and Aldridge addressed the recent Executive Technology Stammit in Turnon Springs, Pla. anongored by Commuterwoods and the Society for information Management

Both of these systems are production workflow systems that nut ents on-line in a shared environment through imaging systems. The processes they automate can be characterized as hist-

volume, rigidly defined and infrequently changing transactions. The next seek has been immediate because both commitmation aced drastic consequences to their revenue streams if they didn't do something. Delaware was looked incorporations to other states because of its inefficiencies, Owens said. Bank One was on a bank acquisition spree that kept putting its loan administration further acquisition spree that keys putting no too.
behind. At one point Bank One had a backlog of 10,000 outdated or incomplete files. People calling the bank would get as frustrated they "would abandon sustamor service abone calls " Aldridge

Not all workflow systems need to be of such a heavy-duty caliber Lemen-level workflow systems can mate expense reports themselve the approval process or pass around other forms and documents in a group environment. WordPerfeet's Influent and Lotus' Notes provide frameworks for workflow systems, and newcomers such as Reach Software in Sunnyvale, Calif., and Action Technologies. in Alameda, Calif., offer systems that lategrate with Notes Older names such as Deirina Technology in Toronto, Da Vinci

Systems in Raleigh, N.C., JetForm in Whitham, Mass, and ViewStar in Emergyille. Calif., offer mixes of PC and minicomputer-based systems, X Soft in Palo Alto, Calif., takes a highly againstic anproach with a text system that allows sophisticated searches.

These approaches offer users the opportunity to implement pe duction systems and move workflow away from predefined paths toward more of an ad hoc systems approach that can change frequently, deal with variable documents and recoute the noth based on the peeds of the day.

brook is Commeter words's technical editor. His MCI Mail address or \$75,9757

Telcos may decide PDA fate

Virtually exercise has seen Contrin Vist file vertually everyone has seen Captain Kirk hip open his communicates and basis the immental manda - Dana a mana Control A design bloothis instead of the likes of Apple Computer inch — instead of the likes of Appie Computer, the li the following forman and district contracts (TDA)

Washington by a memory personal communicafore may also come from a telephone company tors may also come from a te

not a PC maker For insomething and and a Color is meanthing a period is researching a project combine a collular phone with antiquest feet families lies ited electronic-mail functions and new onal information management it would allow written moscowers to anow written messages to on mean not where the sedans amounted testibut

manage Mine

Orbitor inshort would be a smart phone, complete with intelligent owner techsolow to come out com mondy to thirly but tour the leterface easier for users. Reil Northern's research rubbleation eluino focus groups have reacted so positively that the compony le virtuelly recommised to

to market us room as it can

Familiar face

months in Mari

sions and so for here made little headster in

Apple save it has sold \$0.000 Newton Apple says it has sold 80,000 Newton Messagersus to unte, out the product one occur Corn decided to delay its Newton competitor in corp. decided to delay its newton competitor in while are the first the state of the state o Feb. 11 and said it would reposition FO Person-

al Communicators to be more obono-oriented thendate oriented The second

nice have not it beckward A DDA's first benefice is volen. its spend function by to take notes" said Peanly Dzubieck' president of Communication Naturate Aschitects Inc. a consultancy in Washington Druback said Simon, the IBM-built

Said Smon, the the count phone which is belonteeled nose may provide a glimose of the real personal communicator of the future. This is because it fits into the realist of the ensy-to-use telephone not the more difficult



A sample Orbitor screen w

A semple Orbitor screen s

hen he touches the scree

an amplione would riose to

on the moreon was seed

This is like 1980 all over agula." said Kimball Server on applyal of Delapnest inc in San Jose Calif in reference to the deak.

computer

lop PC market before IBM's ontry in 1982 Brown said he thinks so meny as Illicomposing handhold platformer could be seen the country and two of which would survive over time, much like what hernoned in the RC worked

The number of alternatives, combined with the confusion in the market, has users evoing the products but drawing few conclusions. "PDAs are not here yet. This is a learning no.

riod vs. things that are useful." said Joseph Barrett, lead lechnical analyst at Whiripool Corp. Barrell opined that devices that cannot share information do not have a future

horn offered as all in one communications do On the sidelines

(Orbitan-like menduals extenses PDAs could become only a peripheral concern for information systems. Because smart

In fact, the market may take to something that

advances the expeditives of the phone a famil-

ing item much more madely than it has to PDAs

The enablem with PDAs is it's not clear what

propie ran use them for " said Brace Stoches

an analyst at International Data Corp. in Fra

For those ressons, a product such as Orbitor

could seriously shake up the market for per-

some communicators and PDAs which have

ones are not likely to be used to download and upload information from corporate da In IS impoleoment would be ilmited "PC companies will have to go to a middle ground, to very pedestrian uses like letting

users access data while they're not at their desks," said Jeffrey Henning, an analyst at BIS Strategic Decisions in Norwell, Mass. He suggested the product may not even need remote communications expabilities. Henning said lab prototypes later this

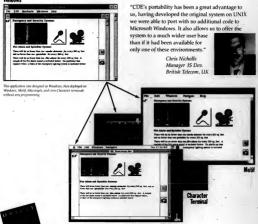
year will further someone PDAs by outnerforming their note-taking capabilities Meagwhile, at least PDAs are products you can touch, and more of these will be coming to market than Orbitors this year and next. For instance, Molorole, inc. on March 7 will announce its Envoy handheid, which is based on General Marie, Inc.'s Marie Cap operating system. Envoy will run on Moto-

rola's Dragon chip and weigh less than two pounds. It will cost \$1,500 when it ships in August sources said "Il's what Newton should have been," said analyst Andrew M. Seybold, editor of the industry newsletter "Outlook on Mobile Com-

puting," and one who has seen Envoy Envoy has some problems particularly its lack of standard serial and tolephone connectors but would probably draw a decent reaction from the market. Envoy also lacks any pretense at voice capabilities but will festure Ardis messaging service built-in and two PCMCIA blots - Michael Fitzograld

Oracle CDE. Build multimedia applications anywhere. Deploy them everywhere.

Windows



CDE is a complete and integrated suite of application design and modeling tools that empowers system designers, programmers, and end users to cooperate in building client/server applications quickly: CDE's CASE design, development, and graphical reporting tools eliminate extensive programming to help speed and simplify your application development efforts.

Call to receive a comprehensive white paper on CDE, written by industry analyst Butler Group. 1-800-633-1071 Ext. 8124

ORACLE

Naws Shorts

ASK Group CEO regions

The ASK Group line appropriately lost its chief everthe ASA Group, the intexpectedly lost in chief excecance of "nervonal family reasons," according to a e of personal admity reasons, according to a #40.7 million loss farths record aventor of finnel 1984 expects to replace Falotti within 60 days acting CFO expects to reptace Patotti within 80 days, acting CEO es wright said. Painty's restring the said

ATR Tewines another CIO -its fifth

Amdabi Corn has injust the loop list of companies that have lost information systems executives to AT&T Gerald L. Corvino, formerly Amdahi's vice presideal of information acroises has been named chief meeting officer and information man vice president of ATAT Microelectronics in Berkeley Heights, N.J. AT&T has recently jured CIOs from Tektronix Inc. MCI Communications Corp. United Parcel Service Inc and Toxas Instruments Inc

Microsoft EMS to get X.400 support Worldtalk Corp. is working on a version of its X 400based message swifehing software to run on Microsoft Corn's assessment Enterprise Messaging Server son Corp. a apcoming amorprise messaging server, server will translate messages and addressing information to and from multiple systems, including Lotus Development Corp.'s CC:Mail and Notes, the Internet. Y 400 and other

Lotus pulls back on 1-2-3 for Unix

Lettre has scaled back its commitment to 1,2,3 on Unix platforms. The company plans to focus mainly on minor point-refense upgrades for 1-2-3 and will inuteed force its University provid Notes and CC Mail Last week, SkyTel Corp, announced the gynilability of its needing system for Notes users. Senerately Lotus of its paging system for roots users, separately, Locus will make available this pook a minor unerade for its Ami Pro word processor on OS/2 systems

Users demo high-speed ATM net

Information systems stalls at Brookhaven Nati Laboratory, Grumman Data Systems and the Sta University of New York at Stony Brook united with a local cable television company last week to demonstrate what they said was one of the antion's first high-speed Asynchronous Transfer Mode data networks Cablestaion System Corn in Woodbury N.Y. said the petwork uses t55M byte/sec. Rher optics

Apple offers means to ride info highway Silent until now about its plans to enter the ballbased information history Apple Computer Inc. plans to announce this week that it will build set-top cos that support Oracle Corp.'s interactive TV software. Apple is expected to be one of 20 hardware, software and telecommunications firms to appear at a demonstration in Los Angeles tomorrow of Oracle's Media Server a database designed to provide CD. quality sound and fell-motion video for several interactive TV trials planned for this year (See Inside Lines, page (22)

ORT TAKES The MHS Alliance has released Version 1.0 of the calendaring and scheduling interface speci-Sention for Novell's Message Handling System. . . Wang Laboratories, Inc. is shipping Open/Workflow, which provides workflow espablities across PCs, Unix and existing Wang systems. Meanwhile, Vlew-Star Corp. has shipped Version 3.1.1 of its document rement system, which now includes expanded

More news shorts, page 16

Large shops rethink PC focus

On Insuch Manifest

The "discourse" may have the last issues. Diverger and telecommunications couls are promoting more large corpurations in shift costs are prompting more unity corporations to sum their force form dealthers back to mainframes and

men steam from personal party to distant after the centrained server inches according to the te The high cost of support — up to 65 cooks on every institution dellar — is a bir factor said Catherine E Louis the board's vice president of research

toray, use matrix were prevaint in received.

There are a lot of bouglits in moving to allow look. en erreteme " I com told ater systems. Loup toes at-Technology Summit 34 recting this month "Sering terms take apopular. Control

I ownered interviews with 25 mombes companies found that hardware aver sound cody about the of client agree only associate and all right). Namely half the expense come from unproduction user neticities such as Simples through manuals and tinkering with neturn

****** The surrous of more fet afronds the common or all ask zing at the rame as all oth-ers combined," she said "Rad opens... are now inv-

ing to do things for which thus are not training. The condens could give this stuff away and it still wouldn't offset the rising road of sup-Date Virtuit reneident of Mate Court inc in Wort. nort Coon agreed that night new elicativerser makes the most economic series for limited mealure.

ex projects, especially in sales and human resources. Usure and remediants unid the burn's coal ratio mates unfortunately seem realistic. Some said information systems drowns are already forced to pick up more clock in compartment intributed systems

the mainframe because it was too exponents " entit Mark V. Wisconhoor division boad of computers and feations at Brookhaven National Laborators

in Union N.V. "Yet a significant part of my shaff taken

in Uptob, re. 1. see a significant prosreatour distributed computing."

Wissembore said his Stanceson IS group continue wassemberg said his su-person to group employs

handle Will Tale and but allows the describer 15 people mark in the former main data content appoint and only cal storage decrees, file and explesioner supporting optistill nowhere near enough "he immented

Manufacture near enough, ne namentea. Lown predicted, support could indeed become the isuse said the comparate IS director at a large discret-

Most companies when food with hour province laced with neavy pressures to streamline workflows une a hubeld approach of contratized and decentral ined systems shoulded

Ongoing, heavy price cuts on mainframes minicom on maintrames, minicomputers and toug-distance any dollar advantage that DC- methodologic cod

LANs once held Loss told can is executives at the Cherida conference This development makes it envire for book flows to

more information software and hardware "unstream" in the hone of improving dustivity and security Lour said "It's far more cost-effective to have data on burn

sale. It is not more convened to the control of the tone "charaid Finally recentralizing data can also bein some companies handle the complex "data mining" that wa-

ers increasingly demand. Loup said. Despite the short-term benefits of recentralizing the pendulum will stablize when better enterprisewide management tools appear on the market, said

W. Dule Young a partner at Price Waterhouse in Rethesds, Mrt

Our scientific users demanded that we get rid of "Client/server is really the enabler of allowing companies to implement re-engineered business processes. "Young said." i don't see that changing. Downsizing on slow road until 1996

spent on client/server goes to unproductive user

AVERAGE FIVE-YEAR COST BREAKD

Re-engineering software tooks are not yet ready for prime time, and the process of moving business. critical mainframe applications to Unix and Microsoft Corp. Windoses NT platforms may have to wait until 1995 or beyond. That was the consensus of analysis at a Meta Group, Inc. conference here

Meta Group extinuted that 25% to 30% of its corporate clients are actively moving applications off their mateframes even if they ston short of theories maintremov away Bot most users are in a multiveer pilot and evaluation stemkeeping production applications inside the class house

Analysts at the Westport, Conn.

will be the atternate platforms of choice during the next two years but said that by the late 1990s, Windown NT will emerge as a robust

To keep mainframes viable, IBM will drop mainframe prices dramatically turningto CMOS chios to compete with RISC-based Unix machines said Carl Greiner, director of Meta Group's Enterprise Data Center Strategies service By 1995, there will be enough

standards-based, integrated software for systems management and network management to assure information systems manage ers of the reliability and accurity of distributed computing, said Dale Kutnick, Meta Group's president and research director

Once the new software infra-

erate the repincement of legacy

Even so, mainframes will remain in some form - aften as data repositories and anchors for mixed-vendor networks. The resuit will be a "virtual glass house". with a mixture of mainframes University and PC LANC

Some of the 350 conference of tendees clearly agreed with Meta Group's gradual transition seenario, saying they are building new client/server systems that sammlement central-site transaction processing.

A Midwest ptility IS manager said the use of packaged applications at his company is driving the instaliation of client/server avetems that surround corporate

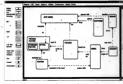
A picture is worth a thousand lines of code.

"Oracle CDE is central to ITT Hartford's strategy for delivering comprehensive information systems quickly and cost-effectively throughout the enterprise, CDE aids us in bringing new products to market quickly and with higher quality and reliability."

Robert Conway Director, IES Hartford Insurance







Oracle CDE uses high level, easy to use, objects and rules to generate suphismented applications without any programming



Oracle En

4	on Meters			Willem Lynch
ilate Gray Clea	r CoatMSX			29 MAR 83
		Specificat	from & Food	tures ,
M Cw Phone		-	*m .	TATION DISC SA TION
Danse	5 LIMB.00		-	-279 Servey-See de 1990
5 4 to			-	CO CAMPAGE
Same Price	1 68,800.00	Same	~	10m.10m.No.
Peckege*	3,136.00		-	the training the
Option Price	3,950.00			
Trade in	0.00	Samuellan	Dealers ,	Accounts Olivers Council
Tetal Purcha			-	Constitution by Contract
	5 25 man no	-	-	T-Count Married

Oracle Reports

CDE is a complete and integrated surie of application design and modeling tools that empowers system designers, programmers, and end users to cooperate in building client server applications quickly; CDE's CASE design, development, and graphical reporting tools eliminate extensive, programming to help speed and simplify your application development efforts.

Call to receive a comprehensive white paper on CDE, written by industry analyst Butler Group. 1-800-633-1071 Ext. 8123

ORACLE

Chicago

CONTINUED PROMPAGE 1

-Non-Audiet to mandistant to be a management

"Why hos our Chicaso development down or sten INTI resonmen that could botton be used to get our Chicago ago out better be used to get our Chicago appout president of development and chief tech-

notory officer at WordPorfact Corn Microsoft care there is a majo concerts. Microsoft says there is ample opportumity to case in on AT sales in the server

sales have been slower for desktop use. Many independent authors wenders MALLY UNDERFORMER SOCIALITY VEHICLES sions of their applications when it became clear that NT would not be a birth-

polyme collex lume seller. servation formers to made by no fee NT fee

dispetor of DC cofference at the Mountain director of PC software at the mountain View, Catal., Others of the

Not all little abandoned plane for an VT ANTENDOTORIO

Pichandron Townshared Missouriely Corn is working on both NT and Chinam

corp. is working on both N1 king Calengo "They will probable be different our rices was proposed to anderest vercame is another stery (belonely un would want them to be " said Ands Co. would want them to be, said Andy C Since Into Inst year Microsoft has

Since late inst year, Microson mo norts the full 32-bit Win32 application process one min ac-on winaz application programming interface (AFI), as a good solutions for ISVs to develop on while they wait for Chicago. If they do not use contain excepted features of Win22 cosh no necessity l'aireade double bate abanes as security, cureour double byte culture

run unmodified Chicago. Ready and hate on Chicago.

Mirmsoff's Winds

NT members of Man

and from law with

orbadulad to en into

bets by the end of

March, said Robert

A

eur, group prove

the orbital institute

This subset of the full Win3? API was for man man non-A. -- MIN-DO-However, following a deval-

ondo should

oness confor ence in December 18Ve 'expersonal about cism that writing NT applica tions with APIs

will really hannen

socilable only on NT would min them the full benefits of Chicago - particularly support for the different neer interface that will debut with the new system ICW.

Jan 101 A near-final version of the new interface has been promised for the first formal beta version which is not for March although ISVs and analysts have expressed skenticism over whether that

"Microsoft officials said they still have not decided how much of the new interface will be in the [first] beta," said Rick Sheefund an analyst at Goldman Sacha Inc. Such industrian has accord another and 183/s to append to that the firm would much Chicago's ship date for the final product from 1991 to early 1995

Greater Chicago area Microsoft will provide ISVs with libraries

for NT - and for Windows 2 t and Win. dows for Workgroups 3.11 - that will let those systems run Chicago applications. said Doug Henrich, Microsoft's director of developer relations. This is intended to provide the widest possible compatihility with Chicago, Additionally, NT anplications will not on Chicago and automatically take advantage of most of the features of the new pace interface

Bowever, Windows NT applications will not support everything that Chicago has to offer, including some parts of the new "document-centric" user interface.

officials conceded. Other Chicago features that NT does not support that some ISVs will went to take advantage of are support for the Plug and play specification — which allows neers to swap peripherals into their

PCs without rebooting - and for the Messaging API 1.0. There will be Microsoft's EMS (Enterprise Messaging Server] to take advantage of using MAPI 1.0, said Mike Conte. Microsoft Office program manager.

werPC partners poised for war with Incel,



45/407, for superior performs fail covince and regime and uniter of the later Ant hours

first the industry. Non art to us, though, is the ice of our cas success. Call Software 2000 tod at (500) 778-2043, and discover hew your besiness of object oriented our solutions will make a win

BIND

We didn't say COBOL Workbench is the best in the world. You did.



We've always believed Micro Focus COBOL Workbench* is the best in the world. Now you've confirmed it by unequivocally placing it first in the 1993 Computerworld PC Software

Brand Preference survey You voted COBOL Workbench as

Best Technology and Easy to Use That's not all. Workbench has also won top honors in Price/Performance, Best Documentation, Plan to Buy, and most importantly, you chose Micro Focus as the company you Prefer to do Rusiness With According to you there was no contest.

Not surprising really. There is no better technology for developing new systems or re-engineering existing applications on the workstation. Programmers find Workbench nuts them directly in control of their development environment, delivering quality business applications on time and on budget

If it isn't Micro Focus COBOL Workheach is isn't in the running. That's not just our opinion, it's yours

For your free copy of the 1993 Computerworld survey, or for more

ation, call 800-MF-COBOL (800-872-6265).

MICRO FOCUS

Client/server scriptorture

IBM plans to link imaging approaches

trian for a M

de so ce

IDM will founch this work the first elements of an amphable of its impaint some that are intended to link its multiple leaging approaches into a unified effent/server architecture

ing provider of imaging nerobate but its warms comsixt of a hodgrooder of offer. ines on maltiple plutforms that use and sell interested with one another said firmer Silver, an industry analyst at BIS Strategic Decisions in Norwell, Mass.
Silver said IBM's ourren

Vignalinia Merines for MVS

and OSP and based on differ. ont archidectures, and its Visualinfo for AIX is symbled by a third-party yendor To interest these products IRM will add a repositore based on object extensions to the DBF database in its Viensilates continue This conceitons which will eventually be able to little imaging documonto amoun OS/2 MOS and AIX company and because the resistance for

A C & Other Control of the Control o arter products. ring produces. To truck individual dues.

mosts stored in the report tory IBM will offer a library some that one estalog and The state of the state of tench objects over they are stored in the repository. Users can address the library somer through an annies tion programming interface that will make it easier for decision applications to so-

non- IPM's inscrine some In general, IBM's strategy is to create an enterprise wide elient/server system for imparing To accomplish this the comoury plans to build an architecture on ton of its object enhanced detabases for

OST and MVS. Once on image is called from the prescriptory position on an MOV trous use repository resigning on an area server, for example, it can be each memory on a social Gy2 server to improve personalities, said real managed, as well-

seld. heart cofferms will be available on OS/9 and MAN manager Only ON the Name and he consected for new but the comment pe supported for now, but the company this year Support for ATX servers is also nine your support for ALA servers is used personnel of the block of the March of the March er is expected to simp

Jim Jones, technology consultant at Norwest Bank of Ion n in Des Moines said he is pleased IPM is cuttining a street noth for its imaging requirements. Stathe noted that his current impaint applications accuracy only intermedian software running on ton of DRP on a LANSormer Monumen if the benk decides to expen its impring applications beyond han dling the legal documents associated

with savines and cheeking accounts to a more high volume area such as ionn does umants the benk would need to unemade "We already have an off-the-shalf client/server imaging (application) runningon I.AN Manager and Ditt. But if we wanted to surport the loss department you're talking about drocessing 5,000 to 8 000 documents a day Right new up do

out one fifth of that " longs said

Silver noted that IRM is somewhat late deploying its olient/compariment of rateey and that this move is the first sten toward bringing the company into step with rivals such as FileNet Corn. Sirms Imaging Systems, Inc. and Wang Labora. tories Inn in this market

At the same time. Silver noted that usare still in the early stages of adopting client/server architectures. This means IBM should have plenty of time to become its market share and a retreat distribution and in the land of the land of configuration management and system management ntilities. Silver said Software AG offers tool to build image extraction applications. See name (2)

PC servers

CONTINUED FROM PAGE 1

of officials dealined to commont in addition products such as Micro Corp.'s still anreleased Hermes technology are ted to fill holes in systems managemen for PC sorvers such as software distribution and systems configuration across beterom neous systems. Heers have consistently said they need taster backup in a PC server environment, which would mean less time to back on and rebuild systems

can't keep up

Early downstring adopters said the tools are needed. When Bonider County Colorado. iumped off its mainframe perch into client/ server in 1999, the cold water was a rude awak

"There simply summe? any fools out these is manner data like we had with the mainframe said Sue Stanley, manager of technical services at Boulder County Information Services, which uses Compaq SystemPros. "Keeping up with rapid data growth and tracking and providing users with immediate access to files was - and is - a nightmare," she said.

Compag's interest in cross-platform compe tivity apothights one area in which acrosses may have a lead on proprietary large systems rivals. Users contacted repressed at least baseline interest in Compaq's potential for expansion with its offerings in the server market, partieularly the monitoring espabilities it could offer

If they're going to be something other than a PC company, they need to do something oth than what they have done," said John Woods, DC systems specialist at Cherryo Inform Technology Co. in San Ramon, Calif. "IBM has quite a hit more death compared to them." He pointed to broader experience with system toturnourshillty as an example tachests condit DC comes makes with also

ing the gan with minicomputer makes from a performance standpoint: PC servers can hit more than 300 transactions per second in benchmark tests. However, analysts said PC vendors lack the ability to offer a total package

PC vendors are severely behind in their abil-Ity to help users optimize and manage about server environments." said Tom Kucharyy. resident of Summit Strategies in Boston He said Compaq has come closest in this respect because it leaves prople on-site at its hir accounts. "Homosor the minimumular and systems gave offer this service to everyone PC server makers armse that adding highand functionality has taken them longer bocause users expect more from them than mini-

computer vendors Companies are trying to do a lot more with PC servers than they over tried to do with min. is," said Dennis Passovov, vice president of ad-

In the meantime, users continue to took for dernatives to manufact critical functions. such as data storage on their PC server

For example, the U.S. beadquarters of Sun Life Assurance Co. of Canada in Wellesley. Mass, is holdfor on to its maintrame dounite reseding \$1 million to recome its naturals to support client/server applications. "PC LANs are simply not robust enough at the roint in time, from a numeroment standpoint, for us to rely on," said John Kruk, telecommunications officer at the insurance provider.

hold extends network management to NetWare Mindows, See page 52: CW Guide to Network Managreement starts on name Rz.

PowerPoint 4.0 to ship soon Release fills out Microsoft Office 4.2 suite

De Steam ! Johnston

■ Users waiting for the final piece of Microsoft Corn.'s Office A.2 fo Windows to fall into place will no have to wait much longer.

Donnellolet & 0 - the other ma ior application for Office alor with Word 6.0 and Excel 5.0, which just shipped - went to man turinget thought lest week a Mi crosoft official said. That means the undated prepentation er ics package should ship within a month, said Robert Rach, group

product manager for Office. Users who have waited the long cut - those who surchosed Office 4 0 and found it contained Wood 6 0 and coupons for the other undated

products - will receive the and at-Something in common

first. Bach added.

Preverbint 4.0 increases a commodelity among the persontation graphics package and Event and Word More than 100 tasks are the came as those in the other and cations, including their location in the mean and tool bar systems, making it easier for users to switch between them.

The package also adds support tor all Object Linking and Embedding (OLE) 2.0 functions, with the

exception of applications automa tion Bach said These include inplace "visual" editing, linking and embedding of data objects between the applications and drag-

and-drop support. Visual editing means doubledisking the mouse on an information object in an OLE compound document will bring up the appliention that created it, but it will appear as though the user is still run. ning the "container" application.

Demandrated & O feedbases were for Microsoft's trademarked "intelliSenze" smart bein technology which wutches the manr's more ments and performs some functions thouser does reneatedly. It also features Wizards to auto-

mate some complex user tasks. shoricut meaus that pop up when the user clicks the right mouse button and the ability to customize the tool bar Users can also directly open files from Software Public ing Corn's Hervard Crephics for DOS and Lotus Development

Corn's Preciance for DOS Donor-Brint 4.0 mill cost \$405 rith an upgrade offer of \$129 for users of competing products. Cur-

rent PowerPoint overs can upgrade for \$60 for the first 90 days. Bach said. Buyers of Office 4.0 get the product free by mailing a coupon that is in the Office package

For your personal copy,



call 1-800-8-SYBASE.

Digital releases unsupported code

esponding to criticism from its installed a, Digital Equipment Corp. plans to include appropriate and undocumented advance code for managing DECnet networks in the

Bosed on IBM's NetView/9000 colleges Debuggier Manager on NetView will formally support only Simple Network Management Pro torol autorit management when it ships next month under the DEC OKP/1 anomaling system DPCnet management panabilities are not scheduled to be available until

June, according to Digital officials. That schedule has not met with wal from DECast sites that nes Dietale com Bolononi Framework management soft ware which is being deemphs stand as need of the spotted to Not View 1000. The plan to include the unsupported DECnet code in the March release is almed at molitive in of those worse by object them can ly access to the DEC det camabilithe said Bill Greeman Palyrenter marketing manager at Digital

Not all there

The unsummerted code will provide a partial set of profield test tools for managing DECnet Phase IV networks plus bridges and terminel comore Gauman raid "What ends up on the kit will be whatever's done at that point," he said "All of the functionality won't be

Digital will recommend that the advance DECres code not be pol man proquetton uses, transman added. The company's tesepaone support workers will not noted "We would like to get some feedback but it's not comething you can call up and complain about "he said

Digital recent said they would needer to be sehad fully supported DECnet manustreent in the Seut Polymenter Manager en Net View sedence but added that the where each should at least after agvance code salesing at least give

"It's not comothing you want to have your management on, but the DECEMENT OF ANY DESCRIPTION OF THE PARTY OF that important " said Steven Tithat important, said Seven 19-Hor, assurant rescues scarpes 81 New York Currency and a feet a feet and the net minute cost to a let

Safe to use Wall definitely have to be careful but it will be measured on a stead aind about homitur our production workstations" added Matt Holdson coning national encount. ist at Partificare Health Systems. Inc in Company Outif

Wes Melling, an analyst at GartnorGroup Inc in Stamford Conn said it is not opposement for Dietital te not undocumented code in soft-

He added, though that the comnany usually does not widely rath Heiro such inclusions Tubich means they had a tot of comelaunts" from DEV and traces

TW Guide to Metwork Management he. gins on page 87.

Internet users go on the alert

System breaches much security into snotlight

Sty James Dady and Gury H. Anthes Internet were disuled themselves off test work following the intest in en ton week to nowing the series of

attacks on the community of not matthew on the OFACU MACEN. lect work none retirem to no

knowledge a network househ all conferred to a boightourd so a neighbours nits because on her the recent unate of Internet

neuromers. The year non the internet was like a jungle hund evalued by the research and condemic community" said D. d. and Determine Commissionly, 1984 ome at Martin Mariette Photogram age of the state of the West on heavy the toorists with their Bernada shorts coming in and setting them carries counting and

lisers beware

Both volumes and novices house on know that no one is immune Two weeks non Rice University di section of notwork in a complete Park and Contrado discourand a number new devices discovered a regul programmed programmed Refere it could be experented passwords were changed and present files

were desiroued "Doonle shouldn't be immrigad

by these things " said Emmanual Goldstein editor of 9600 Mono. eine a magazine fer backers in Middle leland N V "Most network consults is nother in "

eefing up security But there are solutions to later.

met borne mischief alastali a finemali — s buffer that controls aconce between the In-

ternet and internal corporate networks. Manufacturers include Renter Systems Inc in Wilmineton, Del., ANS CO+RE Systems inc in Firmslerd NY, and

Commi Comunhoro Corn In Santa Clara, Calif. ·Establish passwerd shadowing On most Univ sentence all page words are encrypted and stored in a public file. As a result, backers pati down the file and deeperypt the manufacture at their leigure Password shadowing in which the encrypted files are put in a file that is annoughly only to a systems ad ministrator is the easiest solution single il enfrance that forces usors to change their passwerds period ically and discourages the use of

on old pagement *Energyd all correspondence

otine's time has come. says Michael Schrage See name 25

Expo demos cover network universe

Networks Expo show in Boston will come from nearly every corner of the networking universe. The following are expected on

· Novell, Inc. and Intel Corp. will super that Intel's LANDesk Manager will run as an application under Novell's NetWare Distributed Management Services plat form, LANDesk Manager is Windown-based software said to manage NeiWare servers and physical networks.

·NetManage, Inc. in Cupertino. Calif., will demonstrate Newt-watch, a Simple Network Management Protocol-based system for managing Windows deskieps, Also planned are enhancements to its Chameleon Network File System and ChameleonX family of

including automatic installation over Novell's Netx and Open Data Link Interface Ethernet interfaces. He and print sharing and acress to IRM's Profs/OfficeVision Prve Computer Systems, Inc. in

- Tithey Ch

Boston will announce NotWane. Man arement 2.0, a troubtechoot.

ing and diag NetWare LANs

This version lets

network manager clone wer con-Sevention information across er ease of use through configuramultiple servers and centrally manage all NetWare utilities under ege console, rather than surf through separate NetWare meous The software ships this week and

veil adapter cards. Accton Technotory Corp. in San Jose Calif. plans to demenstrate a \$249 Peripheral Composent intercom Ethernet adapter card that it will dollars next month Cableton Systems, Inc. in Rochester N H will show a line of Pihor Distribut. ed Data Interface (FDDI) adapter rards starting at \$1.495 for Extended industry Standard Architecture. Shus. Nubus and Micro Change | Architecture systems

. A corresponds of syndom with un-

anata 8495 mas Sin comos

Other items of interest include Attachmate e x p o

Corp. will reservice of the Extra fer Windows micro-to-mainframe software that same at creat-

tion of graphical near interface menus and function keys to specific application and user needs. It is expected to ship next menth and

Corp., in Sentence, Calif ion of the

Not Worth Inc in Irvine Torse will show a bob that switches up to 12 10M hit/see Ethernet segments onto a 100M bitless VDDt sing at an entry price of \$7 495. The conpany will also unveil a 10-slot bub series that incorporates switch ing an embedded person high speed connectivity, routing and wide-area connectivity starting at \$4 905 for NotWare

•NEC Technologies, Inc. will annonnee shipment of the NEC Image RISC station and the NEC Express RISC server to resellers this week. The cost to end succe will be unpage to the the total of the conrespectively. Demonstrations el both high-end boxes are slated for

the show *The National Microcomput Manager's Association will kick off its "industry partner" program, which promotes the flow of infermation, ideas and opinions among information technology

professionals and vendors. - Compiled by staff writer Stephen P. Klett Jr

Migrocoft

CONTINUED FROM BLCE I

Not BLOS and its assessment to a NetBIOS and its accompanying transport protocot, Nether, i, are not regianie, DIOP in a birth officient of the original torol on a local network of up to 255 up. ers "it does not scale up to the enterprise" said Claude King senior enterprise, said Claude King, sensor ide College of Inspection and Commercial

Over larger multi-LAN installations NetBIOS tends to cause broadcast storms. "It's like a party line." with everwine shouting out their name and iocation and no

--mediline TCP/IP growth Kind As a result of

this more Mi-

erosoft has an

namently loan

cently shipped

T.

TCPSP was rusping on A 1 million BY's or 4.1 mmmm rus, or should be to plail PCs autores a marines the end of sogs. By the end of this year 7 million DCs or shout

feomend enterprise seruna analysisal 12% of the total PC I AN Novell Inc. in negulation are the TCP/IP comproperties on TCRAS nectivity nartment No. yoll only no

a product to provide PCs running TCP/IP with native access to NetWare file and print services. Microsoft has included TCP/IP support in Windows since Version 2.11 and in Windows NT since its release, but key utilities that make TCP/IP networking viabbufor the nonfeebnical unormore miss-Ing. Villars said. "You had to go to third narties for applications like Telect and [Pile Transfer Protocoll," as well as for price remainder recording the west as the that make it easier to find recorrect in an extensive TCP/IP community, such as

New features coming Microsoft plans to make TCP/IP a far

more manageable and addressable protorn) for its enterprise systems through several key features that will be included in the TCP/IP stack for Daytona, the next version of Windows NT, which is expected to debut next month. The features will also be part of a 32-bit TCP/IP stack for Windows for Workgroups that will ship around the same time as Daytona, Carlnon said

One such feature, Microsoft's Windows Internet Naming Service (WINS), for example, will set up one server to frack which users and logical resources. reside on which hardware devices and to act as a post office for queries from users and applications. WINS servers can also interact with and locate resources on systems that use the Domain Naming Service, a broadly supported Unix standard that performs similar functions to WINS Carlson said

Microsoft will address the problem of migrating from NetBIOS to the TCP/IPbased protocol by providing a proxy const that mill air on each submetunab agent that will set ou each sometwork. there to WING experies and next them to a

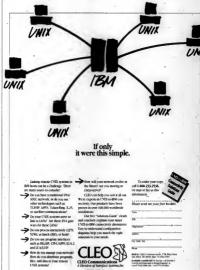
In addition 'Microsoff's recoming in addition, Microson's opcoming TCT/IT impediations was support by proposed Internet Engineering Task Force (IFTF) standard that enables a community track logical TCP/IP addresses and assign them on an as-needed basis to individual systems. The server will

antomatically address homorkopoine tasks such as retrieving an address when a meet leaves and reassigning it to manual designation and

Destatant. Past stars

the TCD ID stock for NT and between sings of Windows with the sim of making ir run as fast as LAN-oriented protocols erch as NetRETT Carlson said Noted in participating in IPTF task forces and plans to implement DHCP as soon as it becomes an official standard soon as it becomes an of

Meanwhile Novell is still actively promoting its proprietary IPX/SPX protocol former me properties y in Albert A productor vo. I tah vendor is working on NetWare Link Services Protocol which will provide IPX SIPX with the damante musting it vice ir A/Sr'A with the dynamic routing it give a time frame for that product's re-



Naws Shorts

Auto agency changes outsourcing

Fraue eigently (Irlenges Outsourcing Great British Stoyal Actionoble) Chies, the British equivalent of the American Automobilo Association, latel test week said it changed outsourcing providers in a bid to help the move to elient/server computing. Following the experiention of its maintrane contract with Electronic Data Systems Corp., the company and it tapped Olivers—based SBIL Systemshoose, the to help it move to new technologies. Details were not authority to make the contract of the provider of the contract of the co

Novell nuts on the Tuxedo

Novell, Inc., and week briefed some 90 developers on the outline of a strategy is plants to red out in the next three to six months for integrating bleVillare with Tucoto, the on-line transactions processing environment that Novell acquired with Utaks System Euboratorries, Inc. The strategy which Novell will officially unnotance in two weeks, provides NetWare edicated was notated to Tuxordo-based systems and enhances Tuxedott braness and its systems and enhances Tuxdeott braness and the systems and enhances Tuxdeott braness and the systems and enhances are systems.

CA ever moves to Legent

An expect of 17% Dat. 71. England Corp. Date named Mark Y, Phasilito De lego off vice previously, compare marketing, where he will be responsible for expectation for the compared marketing, where he will be responsible for expectation for the compared marketing strategies and programs. We-sight, 40, was most recently sensive vice president of sight of the compared marketing at Fried Compared Associations operation and a first compared Association for the compared from the com

Informix posts record financials

Pollowing record results parted by database rivala Orselv Corp, and Sybaie, Inc. Informats Software, Inc. abiq recorded profits and sales increases for fiscal 1993. It was boosted by a Devember shipment of an oppyrade to be firm's high-red Online database. Sales topped SSR million for the year, 1924 were fixcal 1992; 8 240 million, while profits jumped 17% to

AT&T completes IS work force reduction

Cosp. has reduced Ixt IX. swirk force by many? 2000 employees following the completion of a voluntary superarise program that conded has week. A spoken-women for the 7427 mile said 1250 employees had accepted the voluntary program, while as additional accepted the voluntary program, while as additional accepted the voluntary program, while as additional program land to the program of the progr

SHORT TAKES Martin B. Rosch was named vice president of information services at Obsteen Corp., a West-bury, N.Y., personnel and health care services provider Bosch, 54, was most recently vice president of MIS at Ogsten Services Corp. in New York... With most provided to the DriverPC announcement now just one month away.

at Ogden Services Corp. in New York... With the PriverPC announcement towe just one month away. Apple Compating Inc. began feeting the shelves with new price reductions of up to 18% on Quadra compaters... The Washington-based Bustiness Software Alliance said Automotive Testing Laboratories in Bast Liberty. Onlo, agreed to pay \$80,000 to settle a

MPE/IX to mimic NT's look

Ry Mark Halms

Hewiest-Parkard Co's next relense of the MPEJX sperating system will include two features that will help the HP 3000 proprietary minicomputer socialize with the rest of the world-common inche faces with Microsoft Corp's Windown NT and Unix and support for Apple Computer, inc.'s AppleTaik

network.

MFEPX 5.0, due out in May will support user and programmer interfaces common to NT. meaning the two operating systems will have a similar leak and seek to the fleed gain color and the two the fleed gain for the two the fleed gain for the two the fleed gain for the third system. For that functionality, If will containe to recommend that uners turn to third-party wenders (WW and 1).

dors (C.W. Jan. 31).

Lisson Tymiahs, Inc. is shipping a terminal emulation program that gives NT desklops access to the HP 3000, and another company. Walker Richer & Quinn, has a sum-

Oh, to look like Unix HP will provide the HP 3000 with

support for the programmer and user interface standards that NT and Unox use — Posex 1003 1 and 1003.2, said Harry Sterling, HP 3000 research and development

HP's main intention in adding 1003.1 and 1003.2 Sterling said is

to give MPE/IX additional liketiess to Unix operating systems such as HP/UX, which runs on the HP 3000's kindred system, the HP

"That's exciting stuff," said se Rodger Lindquist, manager of the business systems development at the Bio Rad Laboratories, Inc. in Her-

Spiraling upward

Despite being proprietary, 16ths
MPE/IX operating system is growing at a steady rate
lesthalls base



Source Computer I

cuies, Calif. Bio Rad operates both HP3000s and HP9000s, and a common interface "would broaden how we can use an application,"

The latest addition of Posix hooks to MPE/IX aids HPs attempts to add openness to its proprietary operating system. Analysis said this could help offset softness in sales of the HP 3000. A report by international Data Corp. and HP 3000 sales declined by

Although HP's intentions were
Unix-focused, users and analysis
moted that common interface support with NT marks another step
in HP's move toward adding NT to
its minicomputer operating system stable, which includes Next

slongwith MPE/IX and HP/UX. Standardization Donald Shalton MIS director of

Donald Shelton, MIS director, at Hygein Dairy Co.'s Harringen. Tesas, HP 3000 shop, said he is looking forward to NT and MPE/IX commonally because he plans to install an NT-based network server. "Having 1005, t and 1003.2 [on MPE/IX] would mean one standard interface on both machines." Shel-

son notes. It is move a prompt that would work on both."

HP took a large step toward NT support late had year when it began offering a version of its PA-RISC microprocessor that includd a hyte ordering scheme ensily recognized by NT (CW. Dec. 13, 10931. That troops set the strans for a

port of NT to PA-RISC.

Meanwhile, MF2/X 5.0 will include support for AppleTalk, enabling the HP 2000 to act as an AppleTalk server. To date, the HP 3000's support for Apple has included HP 3000 terminal cumulation for Macintosh computers.

HP 3000 users stay proprietary for the

Distributed computing

HP/UX boost to ease DCE development

Hewietl-Packard Co plans to migrate-some of the unique distributed computing features in its aging Apollo/Domain workstations to the very heart of the HP/UX operning content.

The change would make it ensior for HPUX users to build Distribnied Computing Environment (DCE) appliestants because some remote procedure calls (RPC) and support for distributes networks would be included in the core oprentine extern users said:

pollo users pleased

HP acquired Apollo-Computer, Inc. in Chelmsford, Masse, in 1980 and no longer ships: Apollo-Domain workstations, although the company still supports them and will do so for the forescendie feature, HP managers said. Apollo users mamber more than 100,000, analysts-said.

Users of the Apollo system — Users of the Apollo system.

ufacturing industries — said they are pleased with the plans. Most are faced with migraflag to workstations from HP and other vendors or with turning off aging Domain systems altogether. The Anollo-Tomain worksta-

tion truly is in hospice care," said Dong Eixot, president of the Inter-Works user group for HP workstation users. "What we want is to get some of that functionality back to to the HPUX operating system as Domain gues away since the reality is that if only runs on the older.

[Apollo] hardware."

IP is encouraging migration from Domain to HP Series 700 in workstations running HPULV but some users agree related to the some users are reloyatant to convert applications. There's a lot of people who have sophisticated distributed applications that critically pull the plug yet because it takes, you time to migrate shose thing, said Eloti, who directs operations at the Unitersity of lowest energy.

neering college. His site is halfway through a magnation from Apollo to

Programs are u-changin' But change will come as HP prepares to announce HP/UX Release 10 later this war. HP snekesmen

Just last week, HP announced improvements to its Open Migration program for Donata users, including a trade-in program and
consulting services, to ancourage
migration to HPIUX instead of to
competingwiorkstations. The company has soft migration tool kits
and HPIUX compalibility software
for anomalia with
the competition of the
companion of
comp

Rail Nelson, manager of systems software at HF's Workstation Systems Group in Chelmsford, Mass, said Domain RPC software may be migrated into the HP/UX kerned to make it easier for HP users to develop distributed applications. HP already provides DEE RPCs in a senarus DES trol kit, be and



Because There Are More of Them Than There Are Paned Indigital Paper of You...

The SAS



for Information Delivery



The CED receives and checks on all the factor, ordinal to the success of the business. The CED weaths at multil change in the financial reports. The materiotic PVE is noticely weather private mades. And they're all waiting for inventory and quality monitoring systems on our the factory floor. How can one Es manager—with so the interest of the property of the private private and the private private for private private private private private for private private private private private for priva

Integrated Applications for Enterprise-Wide Productivity

Entroprise—wide relative to the production of the first pour software budget and drive up training and support costs—the SAS System gives you a cohesive, enterprise-wide application strategy for that fifs the next of the executive suite, the manufacturing floor, and everywhere in between. One that supports cooperative processing arross hardware publicares, ado go that responds immediately to new or shifting applications demands. Virtually any application that involves accessing, managing, analyzing, and processing data is analysis within the SAS system is information delivery environment.

Call Today for a Free Video Preview of the

World's Leading Information Delivery System. See for yourself why the SAS System is the only software you'll ever need. Give us a call at 919-677-8200 for your free video preview. Also ask for details about the free SAS System Executive Briefing...coming soon in your area.



M	1
JJ.	/∞

SAS Institute Inc.
Software Sales Division
SAS Campus Drive
Cary, NC 27513
Phone 99,677,8200

sone 919-677-8200 🗆 Fax 919-677-8123



"In business, ev is a compromis

erything e."

Introducing the exception.



The new, no-compromise Hewlett-Packard workstation \$3005

It's time to take a stand. Because now you can not only afford the power of a workstation for your favorite applications. You can afford the quality and power of a Hewlett Packard workstation

At \$3,995, the HP 9000 Series 700 Model 712/60 is the only truly affordable workstation to include a 15" color monitor. A. 260 MB diek. And 16 MB of PAM

Since multimedia features are built right into the chip, you don't need expensive external hardware for video and imaging.

And you can exploit the full performance of the over five-thousand applications available for our workstations. With the power you've come to expect from Howlett-Packard.

For more information about HP's new 712/50 and 712/80i workstations, call 1-800-637-7740, Ext. 8014. We'll tell you how HP's newest workstations have become the rule. By being the exception.



CONCRESSO PARTICIPATOR WITH

and wonder who they call them conver when it cases. Elso most of the time you're the one doing

all the servino? At Compan we felt it was time to

That's who we're introduced the Brellant famile

nrice to merformance forward than anything else

Triffley/FISA serbitornum Horadmonthle storage

Each one is a breakthrough in operational effi-

alasses. Earth area in more fractions treated and

not the service back in the servers. Make them

ears to manage Dependable Cost-effective

CA offers data access bonanza

Dr Thomas Wallman

Computer Associates International Inc. took adventage of last week's gathering of more than 2 000 Information Manage Conference Manufacture A nearly a dezen data access and database product nexts

These products included coronal data These products included several data migration toots, a grapuical package ucof City automated life and a manage

Or CALL MINNS CA also florhed out its plans to ship University of its CA IPAG and CA CHECK VERSIONS OF HIS CAVIDORS HIM CAV Dataseen das Mondett Brokend Co.'s

HP/UX environment. I But the most expeatabling product intraduction was CA Visual Persons a Production was CA-VISSEE Express, a designed to across SOL and non-SOL

data company on mainfacture mideane and deskton pielforms. Analysis and and destrop patterns. Analysis and constully provides have critical features constantly provides two critical features: access to marrier uses sources and an extremely attractive price compared with competitive products such as intor-Powersoft Corn's PowerBuilder for Win-

DWS. enal Express bester. ohio nine early month the eli-

another, the cu-**** mbile comm software price ing will steat of 825 000 Con.

bustoneid name or versions of er resonant or Description

neckense tuni cally cost than \$100,000 each Several pages who have been lesting Ch Visual Eveness

against PersorBuilder and other prodagainst rowerbander and other pre *DemosBuildes is not complete it's companies and not truly object oriented

Visual Evanors has a most shares to be the nackage up'll nick" said Sammy Above a data processing program one lyst at Merry Go Round Enterprises, a Vocess Mrd Januard Earthian restailer

Above who cold a five-year Domes Builder license is "10 times more expen cism" then CANissel Expanse is also considering CA-Visual Realin, CA-Visual Objects and data people tools from Oracle Corn, and Sybase. Inc. to help the retailer develop simplified graphical spolientions for its financial analysis

ata accèss landed Analysts also said they were impressed

with CA-Visual Express which touts more than 20 Microsoft Corp. Open Database Connectivity drivers "It looks as though CA is attempting to solve some problems that our clients have," noted Conces Jones chairman of Software Productivity Research, Inc., a consultancy in Barlington, Mass

When an talk in usure about 90% of our mainframe and server database clients are wrestling with how to get data to their (desktop-equipped) end users. said John Donovan, an analyst at Work Group Technologies, Inc. in Hampton. N.H. "Users are looking for a good, reli-

able commercial data across tool and CA's got a damped stood entry CA also soothed some of its CA-IDMS and CA-Deterom mainframe database customers with plans to deliver various Unix versions of the software during the next two to seven months.

Fred Poster, vice president at Pederated Systems Group, the Atlanta data processing arm of Pederated Department Stores said his organization will consider CA-Datacom for HP/UX and other forthcoming Unix ports. "We want to get data accessible to users - that's what's driving our move to Unix." Foster said. noting that he is looking at parallel data. bases from Sybase and other vendors.

there's only one place vou'll find servers hetter than ours.



Proactive curver management coftware CDbased installation full Construm Early Monage mont but a few of the things that no into every Proliant comor un make Imagine intuitive software that makes installs and nnerades a snan Benufit from innostation man ann. most took that hora along take on server status hele measured facility warn of impendine problems, and even take correctime action without

on the market.

For the best resource for Compaq Probabit servers, look no further than the Intelligent Systems Group of Intelligent Electronics, From initial contact to post-sale service and supnort the newfessionals at ISC and ready to handle all your network challenges, Nacionwide,

Intervention from

with rapid recov

ery and backup

systems that kill

down time

you. Rest easy

COMPAN

N NEW PROMENT MARKES AND THE INTELLIGENT SPATTAN CHIMP CAN CONTRINGS THE NOW, CAST HE & CHI AT 1-800-757-7177. CHE NOW AND WE'LE SEND YOU'S PREMADE DE THE REST GOURNALT CONTRE THIS SERL OF BOUTE 66 DESER. NUME MORE CAN YOUR REAT SPENSE E USE THAT?

CUSTOM TO DEVELOP SOLUTIONS THAT AREA T TAPICAL

With a tittle naturation video. onferencine can truly be a thing of beauty Take, for example Sprint's alliance with Kinko'so Conv Centers, Kinko's consulted us for ways to further transform their 650 stores into "branch offices" for husinesses everywhere: We suggested they install Sprint's Meeting Managers videoconferencing so customers can hold business meetings with anyone, anywhere, at a moment's notice. In the future, this unique, customized solution for Kinko's will allow customers to claim their own private phone lines within many of the stores. And even send documents to Kinko's printers from acrass the country, using a modem. For a firm that makes millions of copies a year, it's truly a one-of-a-kind solution To learn how your business can benefit from an alliance with Sprint, call 1-800-827-4800.



Be there now.

Vales to Pictuarity.

GETTING SOFTWARE TO WORK GETTING PEOPLE TO WORK



Integrating five top-rated Windows** applications to work together as one was the big idea behind Lones* SexarSwite*

Now Lotus SmartSuite featuring five highly useful and usable Windows applications all seavlessly integrated raises the bar again with the most powerful and most sought after capability in business systems today. The way to get people working troorber.

The Version Management™ technology in 1-2-3° remains the clearest, most meaningful way to make sense of shared data by letting each user know who made what changes when and why

But now to really expenence the power of working together combine SmartSuite with Lonix Notes*

The most important technology for empowering workgroups is now found in a whole now to the construct and introduction developers.

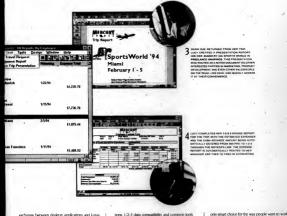
software application category called groupware. And the product that defines and leads this

category is Louis Notes.

Right now PC users in thousands of companies
around the world use Notes and Louis applications
to access track share and collaborate on data in
ways never before possible in ways that simplify and
speed up their everyday business processes to
make them more competitive.

Lotus SmartSuite includes a powerful feature called Notes/FX^{ne} that allows a unique field-level

K TOGETHER IS SOMETHING. TOGETHER IS EVERYTHING.



exchange between desktop applications and Lotus Notes. These links redefine the way people and all their applications work together

Today. SmartSuite continues to lead Microsoft^e

Office in many areas including its range of applica-

tions 1-2-3 data compatibility and common tools and features across the full suite of applications. And notably, in the technology for working together

In short, SmartSuite is not just the smartest choice for the way people work right now, it's the Get 1-2-3 plas 4 integrated business applications for jast 500° when you upgrade to SmartSuite 2.1' from any Lotus or qualifying competitive product. Visit your Lotus Authorized Reseller for a live demonstration or call Lotus direct at 1-400-TRADE-UP; ext. 9459."





Analysts praise Digital's client/server rollout

Dietal Feninment Corn's attempt last most to turn its elient/somer software frameworks from concepts into real produkts draw praise from most anabrite But usees said they must be see Died of follows the work on the working of promises before they folly ambrage the

> is two one det mi one micrise make he for many reworking if you could make existing code instead of reseives it. And new

> that and become units with about about

teneramine Fenerally when you rea rais

as Vicariffects" the Parellors Smalltell."

Applications Development Freimment that

mates emicrates that are insteady escable

son Wednes, 65/7. Accisted and UNIX

Tax DOP it provides a robust set of tools to

build rephistored probled epolications with

cours to 4 wide variety of relational distributes.

Fully carried with reserver flexibility departs

consistes for expension authorises and the

works's largest set of tried and tested class

States ModReds is reside from assessing

est. 400 for our Solution Park. Track you who yo

more forward-looking Festive 1900 convenie

next and back. Call 1-800-755-7272

Digital announced as expected that it will incorporate object technology into the middlessman frameworks desired the course of this year ICW Jan 101 The course of this year (CW, Jan. 10). The support both BM's and Transact Com's support own tool s and I ritinare Corp. s nha AYP systems alongwide its own

agreement System) product ICW Jan 171 A variety of Alpha-Javanut software A variety of Alpha-sayered software THE COST I operating system which Dig. ital is twing to set into shape for nomman is trying to get into simple for commercial processing, included was all 70natural manages which Digital licensed last summer OSP/I marious of the DEC Rdb relational database and DEC DR Interrator reflecte for linking multiple da. tegrator software for linking multiple daeration language developed by Borte

Software Inc in Ookland Colid Industry watchers who had criticized Industry wateriers who had erturesed on coffeens strategy said they size the announcement as a positive sten. The six frameworks that Digital had fast arrises leted bed severe on finally desired

take share, they added The company has "out together a real the company has put ingoine a real environments, and they finally seem to have one cohesive felient/server! mesname to met out to the world " and Dikki Viscous on analyst at Datasuset Inc. in Santa Clara Calif Only Howlett Packard Co with its existing products, comes slove to matching the suite of Univ middiscount that Digital has on the year on pendings Vinner

"Digital scene to have traveled a mee service distance in putting together an understandable stratery" around the frameworks nerved Mare Schulman president of Technology Strategies Group a consulting firm in Stamford

Schulman added however that he is still not optimistic about Digital's chility to comitaling on the client comme startest at the marketing and sales end. "What Digital has to do more than anything else is circule some excitement about what they're doing," he said

Allan Cohb, director of the student information expleme architecture at York Dalumeite in North York Ontario is also impressed. "It seems to me that iDigi tal's) product strategies have improved nuite significantly over the last few years." Cobb said. He added that the company's embrace of the HM and Transact transaction monitors "might became untital to no" in the future

But several other Digital costomers were more skeptical.

"I hope there are some good products in there, but it's hard to tell right now." said Matt Holdrese, senior network speciabist at PacifiCare Health Systems Inc in Courses, Cabil. "At first blush, it's still

"You do get cynical about the strategy of-the-month elub." added Bob Cloning er data processing manager at OK Indus tries, Inc. in Fort Smith, Ark. Digital's strateer "looks like a natchwork to me." Cloningersaid

New selected VisualWarks for client and server ment desirenced reserving from

DEVELOPERS WHO DO NOT REMEMBER HISTORY ARE CONDEMNED TO REWRITE IT.

HIRING ENTRY LEVEL IS TALENT?

Reach 100,000 ton students on Computerworld's annual Campus Edition in October Deadline: Sept 16

800 343,6474 +201

YES! I want to	learn more about how the Application De me down the road to client/server devel
Workbench can take	me down the road to client/server devel
^	

SOLUTIONS AT WORK	() Free information package	
Name	Title	
Firm		
400 000		
City	State	Zip
Phone ()	Fax ()	

Mail or FAX this card to 1-404-365-0246. For even faster response, call 1-800-338-4130.





BUSINESS REPLY MAIL PRINT CLASS MAIL PERMIT NO. 15528 ATLANTA, GA

ADW[®] Information
KnowledgeWare Inc.
3340 Peachtree Road, NE
Atlenta, Georgie 30326-9826

Client/Server Development Has Finally Turned The Corner.



When you travel down the road of client,/server development, at some point you're ready to begin building large, high-volume, mission-critical applications. Leading the way

is KnowledgeWere's Application Development' Workbench' (ADW'), the industrial-strength solution for developing

and deploying mission-critical client/server applications.

With the ADW toolset, applications are developed right the first time, since planning and analysis ensure that they're based on actual business requirements.

Intelligent, flexible information management tools deliver the benefits of

client/server to your development organization. By accommodating

thin based development. By providing security, versioning, and changes

and offering an enterprise wide repositors

The open, scalable architecture of the Application

on multiple platforms, such as Unix, Windows, OS/2 MVS and OS/40

Call today to find out how the Application Development Workbench has helped

thousands of companies turn the corner





1-800-338-4130

Internet surfing

COMPANIED EBOM BACE I

link mainstream compositions with the harky world of exherences Other leaves runay world of cyterspace. Other issues include security, training, legal liabil-ties, confidentiality, information overload and over support (see story right).

Internet planeau said moees do not aboue their access and do their cyber surfing on their own time at home But they added that management may want to out some of the more hizarre sections of the internet off-limits lost as some companies block telephone acsome companies open teres

On the other hand unteres Internet lockeys were unanimoss in warning corne-

overhoard with access controls. Over-regulating employee making queful resources and naggets of "-for inconstile the said

for everyle, blocking the ait, enterory news groups would eliminate of news groups would eliminate access to all aldus pagemaker and all end (computer aided design). One in-

ternet over recalled finding a very psetul 'atyle-checker' program residing on a competer in Norway that he nesser would have discovered if his internet access had been narrowly defined

Unproductive use will be less of a prob lem "if the business has identified a specific application, such as retrieving pal-

ents owns the Internal " mather than euro over une innerior, racher than granting open-ended access, accor man be communicated the second

Basiness use or use place not ought to eather than he some 'Field of Drowns' said Majoff, president of The Majoff Co. in Devter Mich a firm that specializes in beloing businesses make cost-effecin neighby burns, and

From the nerespective of husiness me From the perspective of desiness mangers, unere securato ne un ce i ingres no soluted material an outer ring of off-limit seems (much as all year) and the man seem in between The every area includes all folklose committees which does not rt.sockjore.computers, which does not

em duamess-oracided out in you ing one of the most profound reng vise of the most prosound re-nositories of knowledow

about committee, one man How far a company treads into Mow jar a company treads into me mouse ground was depend on the comored management at Boston Univer-

situ Come businesses want omniornes to anely their full attention to a narrow set of tasks and will limit internet access acan reduced courts or an in-Other businesses expect their employs

to do come "eminenmental conneing Marking a second will be beinded as ideas into the business and making outnestions " Consult and these business necess are more likely to provide broad.

Employer policies range from granting sorium access to virtually all of the Internet's pooks and crannies - a comp nolley at universities - to sharm's limit-

'Plug and play' productivity

le"to peol te from le La stoll imperior in DE A TO THE PERSON NAMED IN nel composite nationales a - le les

ner on the Internet Inc nest Mary J Crests a

n ICW May 17, 199

ers may out 100 to 200 m nate beach

increeses to mere electronic mail. IBM forevample has a minimum one policy allowing acress to resources that

coordingly have no business value and Nicholas Trio who runs IBM's material to the internet at the IRM Watson Re count Center in Yorktown Heights NY However certain Usenet news groups (ench as all new) are blocked by the news common becomes they may be effective and me country to Diffhusiness conduct guide-

Trio said he figures that a hockey fan who cheeks out the recuports backey forms is inserning how to contents through the intenand and there shills will al so come in handy for busi-

Here becard

Della Distributes IBM employees have not abused their secons paid forms, but if someone did spend too much time evoling off on the internet his manager would surely notice the drop in

work productivity, Trio said. niting the ride

At the other end of the spectrum are com names that restrict internet access to narrow husiness-oriented applications Copytech Printing, inc. in Capton. Mass, for example uses the internet to and documents from its existences for just-in-time printing. Employee access is limited to E-mail because there is no business justification for access to discussion groups, said Jeff Weener, director of technology

Group One Ltd., a San Franciscobased stock options trading firm, replaced private lines with the internet for use as its wide-area network. But use access is limited to specific applications by a software shell, said Ken Jones, systems and network administrator at Grown One

> Aside from propriety and accurity res sons, companies may want to limit the scope of internet access just to save on data storage costs, said Warr J. Cronin. university librarian at Boston College

and eather of the book Doing Rusiness on the Internet "The news foods are enormous if you take everything.

The New Jersey Institute of Technol ony in Newark, for example, allows wideonen across with the exception of a few and or marky name groung said Brian White, systems manager, don't waste disk space on ridiculous things," be said, such as a forum for

hashing kiddle character Barney. celled -14 1- -nevdie die die If a company is large

mount to have its own news perver it can block access to particular news groups othemrise it can ask the inter net access provider to send only certain news feeds There are technical way

to rome off portions of the Interpet by situating a filtering avulem between the cornorate network and the internet as well as by monitoring near matterns. The most common math od is to have a router that screens the two-way traffic, but sayyy users can by-

ness or "spoof" those restrictions A more robust solution is to install a firewall or "application successy" ave tem that sits between the internet and the internal corporate network and controis traffic between the two, allowing it to enforce strict access controls Truster information Systems. Inc. in Gien Wood. Md. offers an interpret Firewall Toolkit available free on the internet - as well as consulting services to put it together. Other firewall products include DEC Seal from Digital Equipment Corp. and the in-terlock from Advanced Network & Services Inc in Fireford NV

Meloff said application gateways car establish different classes of access for different employees and times of the day: Researchers and managers got full access, for example, while others are limit ed to E-mail and File Transfer Protocol functions during business bours only. However, this sort of access control comes at a price: InterLock for instance

Seek out new worlds

► The Internet is not inherently a productivity enhancer, nor is it a time sink. If properly used, it can be of great scientific and economic benefit. Like telephones and highways, the Internet can be used for leisure activities. To the nt that such activities are incompatible with work, they should be requlated during work hours, much like lengthy personal calls are discouraged.

However, businesses would not dream of cutting off all phone service just because there is potential for employees to conduct nonbusiness activities.

Likewise, the actual and potential benefits of the internet in carrying vast. amounts of data, programs and services crucial to businesses outweigh the detriments of casual misuse, even if the latter occasionally slips past the watchful eve of management

elessor of computer science, Carnegie Melion University

The Internet is a captivating, enchanting, intriguing world that tempts o to spend hours exploring it. But the novelty wears off quickly. There will be an initial wave of wastage. It's better to just anticipate that will happen and will blow over after a while as people come back to Earth.

Companies that are network-literate will have a competitive advantage. A

certain amount of frivolity is a necessary cost of understanding and exploiting on Pfoffenberger, social anthropolo

➤ Companies should encourage personal communications and socializing with peers on the Internet. The perception of productivity enhancement through the use of networks is highly correlated with the number of people a person meets and develops a working relationship with over a network.

nne Hitz, authors of The Network Natio ew lersey institute of Technol

the network

 ${
m A}$ t Unisys, three open client/server platforms provide you with options.

Because offering just one doesn't give you an option.

To belp you build your business an open client/server platform is



tool for the job Unisys offers three nowerful open client/server systems

Our II Series UNIX systems are outstanding servers and workstations for commercial applications-and they offer comprehensive LAN and WAN internetworking capabilities.

PW Advantage Series PCs are the perfect choice to support personal productivity and executive applications within a network. They are MS Windows-ready and can support network-transparent communications not only for MS Windows but also for NetWare, OS/2, SCC and Windows NT.

CTOS is an internationally proven system tailored for customer service. With a dramatically low cost of

acministration, it's ideal for replicated c'ient/server applications. And all



Unisys client/server systems are powered by Intel microprocessors.

Call Unisvs at 1-800-874-8647. ext. 189. Ask how a choice of our open client/server solutions can help you hit the nail on the head

"Sybase And **Oracle** Lack The C They're Going To Have To Go Ba

Parallel Database Technology That's As Dynamic As Your Organization.

Send It To Me.

☐ Information on attending a seminar on parallel database technology.

☐ DSA Information Kit — including reports from the Aberdeen Group and IDC.

Day Internation Kit—Including reports from the Assertatest Gro

Company

Address _____

Scate/Zip_____

Phone
Or call 1-800-688-IFMX, ext. 18 for more information.



NO POSTAGE NECESSARY -IF MAILED IN THE UNITED STATES

HISTOLASS MAIL PERMITNO 25 MENLOF

POSTAGE WILL BE PAID BY ADDRESSEE

Informes Software, Ide. Ann DSA Marketing

Ann DSA Marketing 4200 Bohanson Drive Menlo Park, California 94025 9905

larity of **Informix's** Architecture. ack To Their Labs**:"**

Recently, Informix Software introduced Dynamic Scalable Architecture," a next-generation database architecture designed to take advantage of parallel processing. The result is a technological breakthrough in client/server database performance and scalability. Informix's Dynamic Scalable Architecture will run on the entire range of new, high-performance open systems, from uniprocessors to symmetric multiprocessors, loosely coupled clusters, and massively parallel machines.

ate Means I International Rate Comments

John Morreit, International Buth Corporation:

4 The Informix Dynamic Scalable Architecture has the potential to vault Informix past its primary competitors for high-end database processing functionality.

Sand Madamana Albamadan Sanbartadan

#The new Informix database server architecture will put the vendor shead of competitors Oracle and Sybase in support of multiprocessing systems.

Reb Tholomoles, Mate Groun

MInformix may have the best scalable server technology today...I think people are mistaken in not taking the time to really look at Informix.

Serden Kerr, Vice Provident, Information Systems, Hyatt Hotels and Ro

What Informix has done with DSA is make it much, easier for me to plan for the future. We're beginning to deploy symmetric multiprocessing hardware through our organization, and I know that if and when we determine we need to scale up to loosely coupled or MPP machines, our Informix applications will be able to make the move with us W.

Informix developed core internal parallelism in DSA, which is different than other types of add-on parallel database capabilities we've seen. Since the parallel processing features are internal, rather than external, we're expecting impressive performance gains. It's clear that Informix thousabt this technology through #9.

Find Out Why DSA" is So Different.

We'd like to tell you more about Informix's Dynamic Scalable Architecture, including independent reports from Aberdeen Group and IDC. Just #III out the attached eard and drop It in the mail—or give us a call at 1-800-688-IFMX,



Computer Industry

١.

Sculley exits, lawsuits fly But Spectrum's fortunes not expected to impede growth of wireless market

De la mara Dala

Unieve stock hugy Unlaya Corp., until rece a fairly languid intue, has been one of the most heavily occit one or the most near at few weeks. For the rek ended Jan. 29. Union

week croses see. 20, Curry a (NYSE), with nearly 12,000 shares traded. One analysi attributed the excitement to at 1.6% up % on the NVSE

Reflecting a year of steady small to midsize contract wins but few "big ones." Flactronic Data System ended Dec. 31, 1990, rose a adout Mr. to Str. Mr. belle. up from \$5.2 billion a year earlier Reflecting cost con lion to \$724 million. For the year, EDS said it booked \$7 lon in contracts

Legent suit gone A federal ludge but week

prior to a strendtrop in Le nt's stock price. Compa this one, eaving it d it would set an ex med by a mah of monit.

SHORT TAKES Two leading ters of PC politicare for mer market have ed to a mergir valued at million Broderbund

John Sanllar/s assistances and codden december or chairman of Province Technologies and sounce departure as entartus

month roles may one day wind up in a trivia contact. But it is no-Markete describes more toward window comments "I don't think Sportrum was mine to be a major player in the witches industry whether John was there or not "said Andrew Sexhold edu



lets Sculley's Spectrum stay was brief

Scolley inimed Manhauset N.Y.haued Spectrum in October only three days of ter he was forced out as chief executive off and of health Committee for the health of emertioned his more from the steet he

catter Socretrum is 100 times smaller than Annie has lost money every year since its founding in 1964 and is brown more for its promise than anything else-

Adding lacely to

Industry NORTH Dead

Manuick last used

bearinged its

minting this will

Canada with

man no marine for

the termination.

-high-come in all

two months after

Sculley signed it

audine

Spectrum claims to have developed the first commercially sucopenful callular modern and care it holds a portfolio of basic patents that allow portable computers to transmit data via colleges telephone networks technol orios soon as the future of wide-remove minaless networks

A higher power

Analysts say the success of wireless computing will not rest with twinted compagies such as Spectrum but instead will rely on groups like the Federal Commonications Commission By the middle of the year, the FCC is expected to begin auctioning the precious radio frequeneles that lightweight portable machines such as personal digital assistants (PDA) need to really take off.

"The usefulness of wireless, light-

wright computers depends upon the government reallocation available radio fromtencies among new and existing communica-

tion services in a timely and efficient matner — two condition the forty have named been known for " and Chuck Jackson, a principal

tens have never been known toe," said Chuck Jackson, a principal Fire Surninger Posicy menetarest, mic. consuminary in persuesast, no. known telecom company was seen as a way to boost the resolutions of the Newton MessagePad, his last appetheurs project at Annie Involves anyonisted that Senilov was an develod by Spectrum's

toohnology that his buel ness informent evaporated This isn't mine to bolo his remotation - said Vierball Record on analyst at Date coord line a receased hanne in Con from Collif

Instead of mixing on Sono

train rectiming, moverer more to extract the Man and the the contain world. The commany recently announced the Ap Wireless Messaging Service which allows do When it rains... mestic Newton customers to and remote controlled sures through the paging

Irom technology, however.

network provided by Mo hile.Comm sunbaldiary of RollSouth Com And Sculley's unity public departure is unlikely to bessen user

enthusiasm for the wireless voice and data transmission technolone that has many mobile nears sollusting in anticipation Although sales of PDAs such as the Message Pad and Tandy Corn's Zoomer have been slow in their first six months of reiense, they are expected to pick up when more of their connectivity compo nentry is made available RtS Strategic Decisions in Norwell Mass, for instance, estimated that PDA sales in 1965 will be more than 300 000 Many of these PDAs will rely on wireless technology

Meanwhile, sales of cellular phones, packet radio modems, sky pagers and wireless electronic-mail devices continue to skyrock-et. The total market for wireless office LANs and voice systems is expected to leap from \$1.2 hillion in 1989 to \$2.89 billion by 1997. according to Frost & Sullivan Market Intelligence in New York

Scull-duggery?

to the Spectrum Sculler battle may wind on as ore than an unusual footnote to a wireless instry that is well on its way. What may sink Spectrum is not the Sculley departu

own bookkreping. The company is under invesiques. Sculley said he would not have loined the any if he had known of the impending investigation.

were represented to be when I loined the company." he said in He also raised questions about the way Spectrum a

for revenue from licensing fees and eventually hired an outsid

e company to post a \$5.3 million loss instead of a small. In a parting shot, Sculley filed a \$10 million inwesti agr poctrum President Poter Caserta accusing him of profit to Sculley's reputation by selling his St

Spectrum last week retailated with a soon m ninet Sculley, changing him with breach of co casest and theft of trade secrets. The suit all

rulley may have flubbed it this time, but analysts said th

san who headed PapeiCo, Inc. for several years before his de-sde-tong reign at Apple is still a marketable executive. "Everybody makes a mistake," said Kunball Brown, an ana-yst at Dalaquest. "I think we'll see him rise from the aubes and

PEOPLE WHO HAVEN'T EXPERIENCED OUR 1-2-3 WORKGROUP FEATURES PROBABLY HAVE A FEW OUFSTIONS

The problem is this while many people might need to work on the same spreadsheet data most spreadsheet software can't manage this process Only Lotus* 1-2-3* Release 4 for Windows** lets you share data

and ideas collaborate with co-workers and work the way

It starts with the powerful Version Manager™ technology built into 1-2-3 Release 4 As a spreadsheet changes Version Manager tracks the changes



2-3 AND NOTES-THE ON

when they were made by whom for what reason. You can see the thinking that went into the spreadsheet. So you get better decisions out of it

And 1-2-3 works deam-

lessly with Lotus Notes" the market-leading groupware. Notes replicates the 1-2-3 document across the network so that everyone, every remote users can access and work on the same document concurrently. And Notes sends instantaneous notification as changes are made. For 1-2-3 users, it couldn't be simpler—out don't need to know Notes at all–just how to save a file in 1-2-3

Then there's Notes / FX™ integration technology that goes beyond

DDE and OLE to let you build the power of 1-2-3 into your Notes applications. With a single click

cations with a single circl
from Notes you can launch a
1-2-3 template thats already
filled in with key information
from the Notes database.
Then changes to the 1-2-3
template are updated in the
Notes document for unparalicled two-way integration.

Of course 1-2-3 Release 4 features close integration with the other Lous applications that theire up Lotus SmartSuter. So for example, it's easy to pull 1-2-3 data into Amil Prof. for word processing or Freelance Graphics" for a presentation.

And right now you can upgrade to either 1-2-3 Release 4 or our new 1-2-3

Release 4 Multimedia Edition delivered on CD-ROM for just \$119 Or for an even better deal upgrade to SmartSuite for just \$299* Visit your Lotus Authorized Reseller or call

1-800-TRADE-UP, ext. 9448** to upgrade





IBM wrote the book on business computing. Now we've written the catalogs, too.



Whether you reach us by phone, fax or mail, IBM Direct is the most convenient way ever to get answers to questions before you buy, place orders and take advantage of special promotions.

Everything from compilers to complete CPU upgrades in four user-friendly catalogs. Nothing's more compatible with your IBM system than IBM products and services. And

services that can help you run

ordering them has never been more convenient. Simply call 1 800 IBM-CALL to order any of our free IBM Direct catalogs—The IBM RISC

I want a Direct line to the IBM product line. ☐ IBM RISC System/6000* Direct Catalog

Please send me a free:

☐ IBM AS/400° Direct Catalog

☐ IBM Networking Direct Catalog

☐ IBM Mainframe Software Direct Catalog

City

Tide

To receive your catalogs even faster, simply dial 1800 IBM-CALL (1800 426-2255) or fax us at 1800 2 IBM FAX (1800 242-6329) attn: dept. 100A.

IBM AAA DIRECT



NO POSTUGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL HIRST-CLASS MAIL PERMIT NO 40 ATLANTA GA

POSTAGE WILL BE PAID BY ADDRESSEE

IBM Direct Department 100A PO Box 2150 Atlanta GA 30301-9948

أوالمطاع المامل والطاما المسطاط والمساط المساط

System/6000° Direct Catalog, The IBM AS/400° Direct Catalog, The IBM Networking Direct Catalog or The IBM Mainframe Software Direct Catalog. In these

catalogs, you'll find a wide vari-

ety of hardware and software to fit any IBM midrange system, the latest in PC networking products and a complete selection of IBM mainframe software.

Direct answers, expert advice.

When you dial 1800 IBM-CALL you'll have instant access to specially trained IBM Direct staff members who are experts on your particular platform.

The IBM Direct staff is prepared to answer questions and process your orders quickly and efficiently. When necessary, they'll prepare configurations based on your existing IBM installation and fax their recommendations to yousoy ou can make well-informed decisions. Plus they'll also ensure that your local IBM representative or team is available for assistance with installation and support.

IBM quality backed by the IBM guarantee.

When you buy from IBM Direct, you get the full IBM commitment to quality and customer satisfac-

top-quality hard-ware products

backed by the same reassuring IBM guarantee. And, of course, the same exclusive warranties to protect your software

Choosing IBM has always been an easy call. Now buying IBM products is easy, too. To place an order or request your free IBM Direct catalogs, simply dial 1800 IBM-CALL (1800 426-2255), Dept. 100A, weekdays between 8 a.m. and 8 p.m. Eastern Time, or complete and return the attached business reply card.

IBM

IBM AAAAAAAA DIRECT

Highway patrol

The information highway d h a the Internet is probably the only subings that has received as much at tontion lately as Tonya Harding

But if you want to keep upon the latest hererige and musings concerning the belongueged skyler the Internet is a great place to do it. Which is exactly what noonly are doing From muck Probably on week time brope are doing, rrom w

That of the folks There are for you and chat lines for more managed interest from the sublime to the previent on this most public of digital networks. Probran temitarion most based or adding mercanian ten what it was designed for spiritually as a sent of on time

bein not for university types, mouth links inches As Mitch Betts points out in a story beginning on name I this work the "othersthangurek" uses of the internet have a lot of communities committing to do what many would consider the unthinkable; nolleing with minity would consider the

blook their kids' assess to the racy movies on Spectravision And with stood sources

Companies have been comnelled to set policies for the nee of various technologies. Stung by lawsuits over "invasions" of privacy involving E-maifaccess, firms have promplemed rules that say essentially "We own the system and everything



Virtually all companies set various garding personal use of telephones. Why should access to and use of a trivia-laden network he treated any differentia? The anguse is it shouldn't

The specifics of any policies regulating internet mu are up to the organization footing the access bill (it only access free; it isn't really), and of course such rules have to consider the prevailing culture Also, there's a lot to be said for promoting the use of

a new technology by nermitting what may seem like trivial applications. PC managers promoting GUIs for the first time to legions of character-based users found that including solltaire on the deaktop was a wonderful way to breed familiarity with a mouse. Network-access rulemakers undoubtedly will also

ony more than lin service to some havie human ter cice such as those that made a national see hot line the primary use of France's Minitel digital net work of the 1980s. Sex is fast fine by most folks, but it ably ought to be pursued in one's spare time. Still, there are those who keel that unbridled inter

net access is some kind of inalienable right, guarantoed somewhere in the Coostitution. I suppose it is as long as h's on your own time and on your own dime Portunately, most people in the workplace are resonable and/or just plain too busy to forum-surf for

the Infest odds on the NCAA Pinal Four But with the stonning popularity of the internet, which will contin ue beyond the dishingout of skating medals in Norway this month there's no timelike the present to evaluate ome basic rules of the road for cruising the information highway.



Documentation: Just say ves

Romeding David Lee Ressell's Vocamoiat nation - lost one as to downmentation" ICW Jan 171 in edward Witness in MW I have breed and the continue of the first of with the costly results of mesting or manufacture is white provide

the first of assert the fallent to document a multiprocures of professional responsibility Twice in the next year! have had clients pay detriy when their took. circular bay dearly water treatment techmen brokes were transfer me-

available sold critical Those elective tens renieve that the amountment in documentation would have been chenner commanufacith the cost of fines and a sonal services and lost opportuni-

> Standard Backer Principal consultant CR Advisory Versions Hatfield Pa

Let's hope to Commuterworld readerwill indiscriminately follow Deniel I on Research advise

Many organizations do indeed produce a large amount of documentation that is redundant or unpeopled sometimes out of hebit sometimes to comply with a contract and, increasingly, as a byproduct of come modern coftra to engineering look

That however must not obscure our continuing proof for useful documentation that is well-designed clearly written and sensibly pack-

A lack of assential system door. mentation will indeed adversely affect a company's bottom line through unreasonable costs of diosing burn and adding new features unreasonable delays in reacting to opportunities and, orrasionally as a recoverage of oncraticanal system failure Contract Winform

Information Disciplines, Inc. Chicago

This stillade is typical of developers who have a "throw-it-over-thewall' mentality

These people rarely end up with the product support chores, if they did, they might value documentation more highly

In my organization, the people supporting production speed hours more than they should dealing with undocumented or poorly documented programs, trying to unravel how the program is sunposed to work and why it does not

in the next follow mandesories hatch tobs have been incorrectly recommend by the data center staff become a of missiant on incidental occurse or mis-

I comes that donementation hands he had a set the most Programs should be colf-doon

menting whenever possible. if Mr Russell houn's oven any downers to not having downers tation it's probably because he the present established math of feeled and commented and

Lynda R. Kine

What a character Bavid Lee Rus the state of the format was the second nonedy of the kind of feelishness that has been a please to our inductor. It might bean been subtitled "limorunge is bliss, so let's have mare of it!"

I have never seen, por do I ex-I have never seen, nor do I es eins documentation

Unfortunately, poor and inadecounte documentation is the norm and most people can find a way to mend it. Consequently, we pay a have price to wanted time lso't it ironic that information professionals den't value informs. tion about the systems they much

Keep up the good work, David, I con't must be read compared acticle if you ever out propod to writing it Pones Rece Notice Mann

"Just say no to documentation was well-written but didn't make any eleganoints Mr. Russell failed to mention the type of software be uses and the type of documents Door he mly beenly on on-line

help, or does be exclusively use bard-copy documentation? As az MIS director in the fashion indus try, he may not need extremely detailed system processing docu-

As an MIS director Mr Rospell's job is to thoroughly research the software be will require his staff to use before he buys it. Researching software includes researching lts If the point of your article is that

you need a birmer office with more shelf snace sneek to your hosees Dun't blame the writers who wrote the manuals you bourbt. Robin Gormeon Father knowe hoot

OS/2 alive and well Listoning to Michael Drips' side of

the argument in "OS/2 vs. Windows NT [CW, Jan. 31], one would believe that OS/2 is dead and buried Hardly Even in his hometown of Tumps. Fig. we have a thriving OS/2 user group, which is growing at the amazing rate of 37% with each monthly most lest

Dring would also have you believe that there is considerable momentum toward NT Many of our members have tried and touted NT, only to be sorely disappointed From calling around the Tamos Bay area, I would estimate that about 90% of the major businesses have either implemented OS/2 or are just now getting into it. If Tam nt is a litture test of what is chine on in the industry I would say that Mr. Drips is wrong and that the momontum is going 18M's way.

Ties Denos Palm Harbor, Fla.



■COMPUTERWORLD WELCOMES COMMENTS BON ITS BEADESS, LETTERS MAY BE ENTED FOR SERVITY AND CLARITY AND SHOULD BE ADDRESSED TO BUL LANGES, EDITOR OF CHEEF, COMPUTERWOOD, P.O. BOX 9171. 375 COCHTUATE ROAD, FEARWICHAM Mass. 01701. Fax mineses: (508) 875. 8931; MCI MAIL: COMPUTERWORLD PLEASE INCLUDE A PHONE HUMBER FOR YER

COMPLETERMONE Editor Faccions

tres fills Age Age : miggl Sections Sellies parter Carnothy sistent form Sellies Farroy Seels Famou teste dant fections (Ame

Technical Editor Senior Editors

Personal Computing Senior William McChel Prispettie Methoda Canadidatio Staff William Lynda Eadenwoch Stephen P. Klestor

Senior Editors an Hagertra, Corporate Strop Lory Zottoka dra, in Copen Mary Panetel, CR Goods Associate Editors Associate Editors ov. Marketphase and C

Decemb Hanger et I. Sactivan Frans Senter Editor et Pray Fransi inn

New Products Writer Lea Bordon Appletant Researche Calcana Erroume C DisrCapy Editor And M. Cresy Inter t Chief Capy Editor

Senior Copy Editory Emberove A, Smith Copy Editors
Copy Editors
Cove Farming
Michiells L Knyo
joy F Reel
Elimberty Editors Design Bleeches

ter firephic Beelgne Ten Manahan Deedge Assistant Sanet Concern Graphic Deedgeer Graphic Deedgeer raphita Specialist Jose E. Brucusi Cartavetes Elich Fannunt Office Manager

Life of Special Proj

Subington, D.C.

James Daty Mark Holper Euro S. Roch enur Correspone Sanagon, Editional Midwell Is Sonder, Burklau

Padle Borrani Padle Bothward Negos, Sensor Car Majo Gallestel Office

Don't look for truth in benchmarks

Don Dothleo

'm that of vandoes producining their nandrate' supersprity on the basis of bonohmark society in my mind those bands of classes have about as much us indity as "downer measuremented." "100% many as "doctor recommended, 100%

guaranteed, user a Anyone who took "Advanced Programming have at a possible to make a board-mark to news northing I could consciusly seed a benchman's that would prove a Dall 1965 is 25th factor than a Cray X-MP Would researchers at MIT then start doing Daid dynamic magazeh an

Why then do Oracle Royland Microsoft Suhace and freedo external to convince as via Madesanders assessed basedwards. that Once products not the year best in their fields? Are their claims completely accurate? No in.

a thousand drystones If anyone needed confirmation of inst how aliable and subject to interpretation beach. marks really are it was associated about a year marks really are, it was provided about a year came benchmark papert to demonstrate the superiority of their dotabase products. Lawvers know this obenomenon well - one aeridoor from will approve and two different starting

I also sould an instance a few years use -hard received competer medication in when a progenient company pantication is who is the DEME development was Date From COURSE FOR DESIGNATION OF THE PARTY OF THE P hottom, mainly day to clowness. Upon places recording to be to story or open come reviewer did not use

reviewer and not use Not using indexes in - DOME is abin to driving a car with errying a car with this was a serious honohmarking serve the memorine with

managed a small addendumin its next in une I can only won der how many neces chose the strong application because of that

What I want what companie America watte_am products that work increase tree ductivity and improve the bottom line (see related story nage 61) Benchmarks will not lead as to these products. Only carreful hands

on medication is able to do that e evaluation is able to go that.

benchmarks aren't

solve to milds or

to those products

provide mulantion outline of their parties 14. provide extraordord to the market for a birth merkermance activary neutonal analyzer Given that we were looking at a one in the \$10,000 range, you much sannose we'd have difficulty

obtaining an availantion anit This was not Corporate America tion and the same so, givery venuor we wante producte then willing to drop that work and that off a unit so we could help improve the tout it at our city Rather than rely on hottom line and the sundow' chains

the venoors coams, the products in action The fact is that henchmarks are only

a tool in the often nerolexing and intricate procurrenced process. They are simply a means cot on end

Bothke is the network manager at Truck Data Corn . s. New York market data yender He can be reached on County/Some at 71710 3995.

Missing the telecommuting train

Michael Schrage

von in the best of times. Southern traffic would set better after the 6.6 tembler California teeffic studes. Of course Similarly It's disappointing that so few major. these are not the best of times in the Los Angeles area. Over on the right coast Northeasterners have experienced their worst weather in more than a decude: rush hours have convistantly been an icy mass

spend millions of

dollars a year on

information tech-

Excuse me, but can't anyone out there take

There has never been a better moment -

ismically meteorologically, technically or economical-Companies that ly - for organizations to explore nectelecommuting. Forget the environmentally correct

nology are blind to the inevitable: "green" reasons to Natural disasters substitute disk drives for four will occur, and contingency plans wheel drives In for telecommuting must be in place. terms of sheer flexihility, convenience

and, yes, productivity, telecommuting makes more financial sense than a lot of the faddish re-engineering initiatives many companies have andertaken. It's disgraceful that California officials have

door so little to insist on telecommuting as a vehicle to reduce the negative economic impact of o seismically shattered freeway avatem. Maybe these bareaucrats thought the

Southern California companies had telecommating contingency plans ready to go in the aftermath of the Northridge earthquake. These same companies have been investing millions every year in client/server architectures, laptops, remote compoting distributed databases, Lotus Notes and ISDN - and they don't have the wit or foresight to be prepared

for the inevitable. That's leadership? That's robust information in frastructure design? By any measure. telecommating repre-

sents interesting technical, managerial, organizational and productivity opportanities. No wonder it's been overlooked. Perhats IS executives and their telecommaistery are too been arguing the technical merits of ATM to both.

er playing leadership roles in defining the virtual workplace. Or maybe they believe that they're just foremen on the digital chain gange building their companies' - all together now _fufurmation experhiabioast sother/report obligated to think like ambitages. What a con-

Why aren't telecommunications managers and CIOs in every Fortune 1,000 company agexecutado nechla et eleccommutino as a vahiole to transform the technical and cost infrastrustures of their organizations? Why aren't the CIOs of major companies banding together to neah their local Rell communies and mublic atility commissions to reduce tariffs if they keen a good chunk of their commuters off the highways one or two days nor work? Door senior management one no connection between the popular fad of process re-engineering and the

genaine trend toward distributed work? Maybe senior management would be im pressed if its offered cost-effective ways to demalerialize the physical office via smarter networks

Hofortunately it's completely symptoms of the nerochial systems mentality of too many senior technical managers that we've seen such poor responses to the seismic and meteorolutical conditions that have recked both mosts It's no evedit to CEOs either

Today's technology already empowers a growing number of organizations to cost effectionly implement distributed work practions What's more everybody acknowledges that the tread is toward even greater cost-effectivepess. My gosh, the distributed workplace to support telecommuting is being ball anyway Why are so many ClOs seemingly incapable of articulating a coherent vision of how their virtoni worknings a control viscos o

Sebrago is a fellow at the MIT Sloan School Center for Coordination Science and the MIT Media Lab Illinda. ternet address is schrupesy media-lab,mit edu

TANDEM'S OFFER CIOS A F I T

t will probably come as no surprise that very few UNIX systems are suited to the needs of the average CIO.

of the average CIO.

Why, for instance, do
they require you to configure
a different flavor of your software for each platform? Quite
frankly, we at Tandem think
that's nonsense. So, to help you
ease the discomfort of application incompatibility, we happlify

present The Integrity Series





~ INTEGRITY from TANDEM ~

This complete, new family of fault-tolerant servers, network resource servers, and high performance workstations offers an advantage you won't find in any other UNIX family: MIPS* application binary compatibility.

With MIPS application binary compatibility, Tandem gives you the freedom to run the same shrink wrapped

UNIX software on your workstations that you run on your servers. All of which means your client/server applications

S Z E IT UP FOR YOURSELF.



For a UNIX system that suits you well, just complete and return this card. Or call Tandem today at 1-800-959-2492, Ext. 713. We'll send you a

free copy of our informative UNIX systems brochure for all the facts about The Integrity Series. And we'll show you how to get a custom fit in an off-the rack world."

Sax or Property Jan Celle



Place Postage Неге

TANDEM 19191 Vallco Parkway Cupertino, CA 95014-9862

LOC 4-24

Attn: Frank McNear

Blockfilmedhholdeleleleledel

NEW UNIX SYSTEMS T I N G RESPONSE





can be implemented more
rapidly to work the same way
on every node — without
re-engineering, re-compiling,
or re-anything.

And since the entire
Integrity family is also built
around the most advanced,
user-friendly implementation
of UNIX System V, you can
choose from a wide variety
of available plug and play

day you install your Tandem systems. Once you do, you'll discover all the other advantages of The Integrity Series:
hardware fault tolerance at no price premium, the highest level of data integrity in the industry, simplified system
administration and support, and the explosive performance of the MIPS R4000° RISC microprocessor.

So call Tandem at 1-800-959-2492, Ext. 713, to learn how we can tailor an Integrity system for your company's needs. Because you should never have to put up with UNIX systems that don't fit.

italianted environments are little dicitible.

HP's performance management tools show you the future in time to change it.

Today, the way to manage your systems can be crystal clear. Thanks to the vision provided by our performance and resource management tools. Giving you the kind of control previously available only in mainframe environments.

Our family of products provides everything from top-down enterprise overviews using HP PerfView to nitty-gritty system diagnostics with HP GlancePlus. To plan and manage your resources, we offer HP PerfXX and HP Performance Collection Software. Working together, they help you in-

Working together, they help you increase user productivity and maximize system utilization. While reducing management costs. You'll be able to see problems in time to avoid them. Even future needs become predictable. HP has long played a prominent role

HP has long played a prominent role in Open Systems management. With HP OpenView, we showed the way to manage integrated networks. So it's no wonder were the leader in tools for the distributed computing environment.

To see more, call 1-800-237-3990, Ext. 2826 for our free video. The future will look much brighter when you look at it with us. The performance management leader for the distributed age.



.

Advanced apps head for mainstream

Experience from IRM and Apple Computer Inc. hope to break the long remains hold that Maroural Corn, and long-running note that sucroson companies have an deaking computing by focusing on the next congretion of annion. tions that will be made practical using low-cost RISC handware.

Speaking at Demo '94 recently, the two partners highlighted speech recognition international lanmagnificed speech recognition, international sale guage transaction, vineoconserencing, distributed compound occuments and according graphics as key entich ite-w

It is possible to run many of these advanced anninetions on an Intel-based IC but this typically maourse the addition of a convocusor to off-load the term floating-point operations that the analysations sourceme

A slow challenge

But it will take several years for advanced applies s to move far enough into the mainstream to allow IRM and Apple to effectively challenge Microsoft's dominance as a systems software supplier and Intel as a oblin makes

(The Description of the condition statement and the second be the moral equivalent of a Motorola 6800 platform, I don't see them imping in rintel's deminance." said Daand Common address of the "DC Letter" numericates in Can Mater Calif The key for IBM and Apple will be to deliver the tools

that make it ensier to build advanced apolications up DISC measures which trained between appearances in of fraction soint homogeneous built into the chin. Bo cause their processors are priced lower than equivaient Intel platforms and will not require an additional conversed to run the abelications. ISM and Annie are banking on their ability to deliver platforms at a home out our cost then loted

Sattablactic value and video

Out Courses and of that latel's Bostom and Instant has many RISC like principles built in. So if intel can effectively match every move the PowerPC makes the adoption of the PowerPC will be much given a be said

to encount both IBM and Apple are counting on users switching over from their current deskton lovaltion to a BISC architecture that is more forward on and in a land in which write and wides will be the refmary case interface

There are millions of people who want nothing to do with keyboards and mice " said Richard Guarino. neral manager for the advanced technology groun at IRM. "Realistically we know it will take years to

twile develop human-contened computing but the truly gevelop numeri-conserve computing, but the ney. PC vendors, page 41

Chicago, Daytona on the man

stratesy for the PowerPC to main desktop mind share a conjur Microsoft pureut Demo '94 said his company will not be sitting still He laid out an evolutionary track for Windows that includes an excitate to Windows NT this series

and the release of a 32-hit promptive multi-Windows offering code named Chicago The Windows Witandala and anoned Davions will onhance the file and print server performance of Mi crosoft's portable 32-bit operating system. Key ole-

ments of Chicago include a document metaphor inter face consisting of an integrated file manager a program manager and a control panel running

a single shell, and support for plug and play, the IBM without rebooting their systems.

Jonathan Lazarus, Microsoft's vice president of

systems strategy, ran a prototype of Chicago on a PC and a laptop from NEC Corp. that supports the plus and-play standard. The Chicago offering is similar to the Macintosh interface in that it emphasizes folders. though the demonstration at Demo '64 was only a new totype Lazarus said. - Michael Pizard

Emulation gets one more try the Macintosh and PowerFC worlds. Through a licens

Constation mile

De Stonet I Johnston and Ed Scannell

Many yendors' attempts to leverage emulation technologies as long-term strategic advantages have largely turned out to be merely tectical and short-lived

Companies such as Apple Computer, Inc. and IBM have introduced competing technologies during the last several years via add-in

Sort Case.

COMMUNE

MACCHARUE, DAYNA SYSTEMS, INC.: A PC box attached to a Maci Allows users to run Macinton

boards or software em ulators with less than constituer secults Inveriably empiators

served only as mill stones around the neeks of their respec tive native operating systems resulting in the dreadful perfor

applications "The biggrout problem with emulation technol ories is that in terms of speed and performance, it is death," said.

Mike Drips, a Tampa, Fla., Windows consultant working at a large telecommunications firm with an count number of Macintosh and Intel Corp.-based systems. "Up to now, emulation just hasn't been a suitable solution for most environments," said Richard Buchanan,

a senior analyst at Forrester Research, Inc. in Cambridge Mass But this fall two more onlimints will attempt to bridge

ing deal with Microsoft Corp., Insignia Solutions, Inc. is dryeloning SoftWindows for the Macintosh, which will let users run applications for both the Marintosh and the upcoming Windows 4.0 on Apple's apcoming Pow orPC-based systems ICW Feb 71 Titimately this about he should be annie became it

gives them a better position strategically." Drips said. it also gives Mierosoft another opportuni ty to spread the influ-An abbreviated inch at the history of emulat ence of its Windows application program mine interfaces to an other hardware plat-

> But whether neer will benefit from this latest attempt as much as the random will remains to be seen. Incimin's technology works by emplating an Intel 1486 processor instend of the upcoming

Windows 4.0. code named Chicago. Under the deal, Insignia has access to Windows 4 Guourre code, allowing it to optimize important performance areas such as graphics handling and other I/O routines.

Acress to the source code also allows precommitted of some emulation code that needs to be interpreted on the fly, thereby decreasing the performance degrada tion associated with most resolutors according to if this technology proves to sidesten many of the la-

herest handicans of past emulators. It could not a competing technology. Sun Microsystems, Inc.'s Wabi interface at a competitive disadvantage. The Wahi interface emplated the Windows environment on Universel

White Wahl interfaces are still in beta tosting thoron mens among many industry observers is that they degrade the performance of Windows applications to the point whom they represent no real threat to Microsoft's

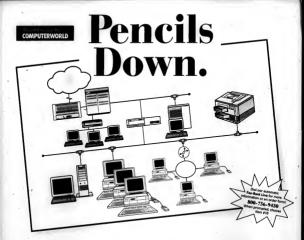
"I don't think Wabi will take the world by storm. It was

thrown out there as a mine in the road in hopes of causing Microsoft some problems," Buchanan said, "But deunite what ISon Chairman! Scott McNealy believes. I As n't think it will be all that strategie But with significantly more powerful RISC-based pro-

revormen the horizon, each as the PowerPC and Digital Equipment Corn's Alpha, some believe the performance-drawbacks from emulation could be minimized "When you look at DEC's Alpha chip, which churs at 200 MIPS emulation looks pretty mod. They Road pro cessors! can cover a multitude of performance sins,"

But as RISC-based processors and microkernel tech nologies allow hardware and operating systems to become independent of each other, and as various compiler technologies become more advanced, emulation

strategies may look like a bill on the radar two years If the mainstream apps are going to be recompiled most instantly, then this is not going to be a hig deal, said Jeff Tarter, editor of the "Soft Letter," an industry



In fact, don't just put the pencils you use to sketch your networks down-put them away for good.

Instead, use Network World's NetDraw³ 2.0. precision clip art for building networks. Immediately

would be one ating intricate network drawings and diagrams right on your desktop. And additions or changes to your networks are as quick and easy as the click of n morne betton

No other clip art program is as detailed or complete. And no other clip art program is designed specifically with you-the network professional-in mind.

Detailed Vetworks in Vinutes with VelDraw® 2.0

With over 330 professionally drawn images, NetDraw*2.0 gives users immediate access to clip art symbols for LANs, WANs, computing,

nes, relephony and notching and cabling. Vso included are flow charting symbols as well as marriage graphics to denset your networks prographically. Available now for just \$129.95, NetDraw® 2.0's complete clip art library is easily imported into most popular applications for Macintosh, DOS and Windows-most likely a program you alreads use every day. We even have a version in the popular DNF format for use with most CAD applications.

VetDraw® Plus Adds the Bonns of a Comprehensive Draw Program

If you are a Windows user and also need the convenience of an easy-to-use drawing pro-

gram for diagramming your networks, order NetDraw® Plus! Priced at just \$199,95, NetDraw* Plus is your complete network diagramming solution consisting of the bestselling Micrograft Windows Drow⁸ LF software program and comprehensive NetDraw 2.0 clip art library, NetDraw* Plus provides you with all of the drawing took and features you will need to create network diagrams that have maximum inuset. With NetDraw® Plus, you simply

select images from the builtin Clinart Catalog and drop them right into your document. You can even export your NetDraw® Plus diagrams into other Windows application



OIDG

Order your copy today! 800-643-4668

NETWORK WORLD

Fill it in. Fax it in.

FAY NO 508-626-2705

Save \$8.

Yes I want to receive my own copy of COMPUTERWORLD each week. I accent your offer of \$39.95* per user - a equippe of \$8.00 off the basic subscription mice JBusiness J New J Pienes Basic Rain S48 per year Next, CernisCouth Amends \$100 Comps \$200, All other courses \$200 F. Feeign orders must be prepaid in U.S. dollers Please complete the questions below to qualify for this special rate.

COMPUTERWORLD

FAX NO. 508-626-2705

Fill it in. Fax it in. **Save \$8.**

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$39.95* per year - a savings of \$8.00 off the basic subscription price. Last Stone 164

San Se

burness J New J Renew Basic Rote \$45 per year), Consultouth America \$150 Europe \$255, at other countries \$255. Fryings orders must be prop Please complete the questions below to qualify for this special rate. Boolet SAMOUTOTY (Civile one)
 Manufacture (other for computed to Prepript Humanus Files Cares
 Manufacture (other for computed to the computed to

COMPUTERWORLD

F4407.0

F4407-8



BUSINESS REPLY MAIL EDST CLASS MAIL PERMIT NO. 55 MARION OH 43306

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P.O. BOX 2044 MARION OHIO 43306-2144





NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 55 MARION, OH 43306

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044 MARION OHIO 43306-2144 Sunnart candens

Microsoft Plus Support in the fast lane

Services aimed at intermediateueere

By Stuart J. Johnson and Ed Scannell

Microsoft Corp. has begun offering Micro soft Plus, a support service designed for vel and users of the compa-

Mirmont Pine provides extended services including express telephone support, for appli-cations and personal operating systems during

their product warranty periods Products covered under the plan — which receives covered under the past — which called "nower users" - include Windows as well as the company's applications for Macintoah and Intel Corp. hardware systems.

in the express lane Express phone lines are separate from the

company's regular product support lines, so the service will not impact users calling for normal warranty support, the company said Some information systems executives said they believe the express services can make an immediate difference in alleviating the support crunch among intermediate as well as more ex-

"If our financial planners have a problem with Excel, they probably have a better idea than most in IS do about what the problem is. So they pretty much need to call someone fat Microsoft) who knows more about what the psor is doing " said Phyllis Koch, who works in IS at a large truck rental company

Koch and other IS executives said they priced about right to attract small departments 'That's reasonable if you are a heavy Excel or Word sare." Koch said.

Bargain shopping
Outhoribers are eligible to receive discounts of up to \$70 off various Microsoft products, including a \$20 rebate off any new Microsoft package with a value of \$100 or more. Users can also receive up to \$500 off products from other ven-

A subscription to the service also includes serves to a new Microsoft Pins forum on CompuServe with 30 days of no-charge connect

Other benefits of membership include a bimonthly journal called - prosaically enough -

Subscribers will also receive a video created for Microsoft Plus featuring company Chairman Bill Gates presenting his vision for the future of computing, "including the information highway and the customer's role in developing software," according to a company stateChristopher Lindquist

Games. revisions and developments

mored dominance recently by signings worse communicative recently by signing a fame) to write the operating system for the gaming Godzilla's next entertainthe gaming Gozzina s next entertail named Saturn

The goal is to turn the Saturn into a real 22 bit computer instead of just an orbon for Missocoff was no doubt drawn by the notice

hum market for such a system if Som our dublicate the suc cess it has had with the 16-bit Generals system. But it could be a double windful in Redmond. As one Usenet back but it. "Now Microsoft has a place for all those unsold copies of Windows NT

Excel 5.0: Developed by God

While NT may not be burning up the sales charts, Excel 5.0
is another story. Listen to beta testers on CompuServe and you get the impression that God himself most have been on the development team. One Microsoft Office user, who said the development team. One microson units saw, who said be liked the program, raised an interesting point — Suppy overload for Office upgraders. He complained that his old version of Office plus Excel 3.0 and a new version of Power Point added up to some 30 disks that he'd have to keep on hand. By not clearly delimiting the [Office] disks by pro-gram [disk 1 and 2: Office: disks 3 through 11: Word sto 1. Victorian has created an archive night mare for the end user," the user said.

Despite the floory flood, support representatives said Ex-Despite the floppy flood, support representatives said t cel 5 flyans heavily back ordered. If you're one of the back once who has a come you might want to on on an Exeter our ones who has a copy, you might want to go on an Easter egg hunt. Start Excel with a blank book. Right click on a tool har Salact Costonics. Salact Coston from the first Describe Sair Select Costomase. Select Custom from the ust. Oragine Press Cirl. Alt. Shift and then click the Solltaire iron. Enior.

Wishful wish Het

A harten OR Sthan OR SS DOOR broaden also members own A better USZ than USZ? USZ booster cost members cer-tainly aren't afraid of offering a little construction criticism The comp.os. os2 bets group on Usenet contains a "wish

The complex one orea group on conserved the IBM's Boys in Blue won't be tacking this roster to their refrigerators, though, it's broken down into 21 obsu ranging from "The Kernal" to "Rayy" to "OS/2 in General" ranging from 100 formal to reck to to to a movement.

If IBM decides to implement all of them, the next version of OS-2 should arrive shortly after Bill Gates' first strandehild.

Minor revisions = major rewrites

Revisions are just what many (tracie users don 7 want these days. One user put it this way: "Why is it that Oracle views every minor version release as an opportunity to redo the every millor version research as an opportunity to read the nerve, and neveral other Oracle customers expressed size lar expaperation. While most of the replies had something agreement while most of the reputes had something to do with keeping support representatives employed, one near-fid nost a work-around "We mit so fed unthat we now user the post a work-around. We got so the aptent we now keep the list of libraries in a central file and pass them in to Make vie a shell environment variable. We just out lived of going into every single Make file four or five times a year

Rounded for performance
Yes eas file this Usenet note under "Useless Mac information." Why do Macs have rounded acreeu corners? It improves screen performance. The photons don't have to dereferate as much as they would for a chara corner as arreen refreshes are feater

Lindquist is technical editor at Electronic Entertoinment magazine He can be reached electronically through CompuServic 73361 263. MCI Mad: 61 17239 Intermet christis notewn com or America Online

PC vendors

CONTINUED PROMPAGE 10

Thus faz, IBM and Apple have shipped 800 reference Po orPC platforms, which independent companies are using to develop their own PowerPC systems with chine manufactured by Motorola, Inc. PowerPC systems are expected to arrive in quantity this summer, and Microsoft and WorldFer-fect Corp. are promising to deliver their applications on PowerPC pistforms from Apple. Those moves are expected to help foster additional support from other software vendom Commernated

In the near term, the arrival of PowerPCs should forge a meiding of the PC market and the high-end workstation market currently dominated by vendors such as Sun Microsys-tems. Inc., Hewlett-Packard Co., Digital Equipment Corp. and Silicon Graphics, Inc.

"The real opportunity is to bring engineering and busi-ness applications into the same bux. But they have to get the business applications on their platform," noted Steve Barlow, a product manager at Lotus Development Corp. Like most software vendors, Lotus has yet to make an offi-

To give users an avenue for bringing their current business applications to the PowerPC. IBM and Apple have promised that PowerPC systems will run existing Windows and Macintosh applications under enulation at speculvalent to today's intel and Motorola processors.

But how offectively this emulation strategy will work remains to be seen. "Emulation is one of those things that sounds great, but always works poorty," Coursey said.

Briefs

Lotus bundling 1-2-3

to Development Corp. is bundling 1-2-3 for

Why is this extreme coberpunk

Intel Pentium

- Superscalar architecture
- 100 MIPS
- Buret mode data transfer
- Burst mode data transfer
 High-performance floating-point unit

PCI technology

- 132MB/sec throughput
- Multiplexing 32-bit CPU-peripheral data path
 Buffered expension architecture.
- Bustnered expansion architecture
 Bustnered expansion and concurrent notion support
- Autoconfiguration of PCI options

- Autocongulation of topicits

Add to this powerful platform high-capacity, high-speed storage — like a 198 (8.5me) hand diskled.

And, for high-resolution graphics, rely on a PCI-based, 64-bit MATROX MGA-III+ ACCELERATOR.

We're taking 50 MHz clock speed. Ultra-high, flicker-free 120 Mz refresh rates. Resil-time CAD conserviness. Exhibit on the Microson Capacity and more in the capacity of the

It all sums up to workstation-

Yours, from AMBRA," at a PC-class price!



If you have extreme idea

erformance, say hello to

build computers so

thevire

Clock-doubling 486DX2 with optimized design!

Intel's DX2 processor provides 66 MHz internal clocking, which pays off in enhanced Windows performance for you. And that's just the beginning. Every computer in AMBRA's latest DX2-based series comes with these huilt-in performance-boosting features:

- 256KB direct-mapped WriteBack L2 cache for better hit ratio
- Local bus IDE controller (IDE cycles concurrent with CPU)
- Integrated 32-bit, high-performance local bus
- graphics accelerator

 Buffered serial ports for improved modem performance under Windows
- under Windows

 Multimode bidirectional
 - Multimode bidirectional parallel port





AMBRA

1-800-200-1574



DENTILINA AND BCI TECHNOLOGY

@ DP60/PCI

- Dentum processor 80 Militia ■ Pentium processor, ou mr. _
 ■ PAJN CSI Lynemov-cache data path
- 256KR I 2 cache
- = BAS RAM more 128MR
- 4 ISA 2 PCL 1 ISA/PCLeint
- 540MR (12ms) IDF hard disk
- # 6 dries have ■ East DCI IDE controller
- PCI graphics accelerator, 2MB
- 14" SVGA color monitor I B
- # 3 5° 1 44MR diskette drive
- 1.44mill diskette drive Learnerk® PS/2®-style 101-lesy learners

■ MS-DOS® 6.2, Windows® 3.1, mouse \$2,669

@ w/ Diamond Viper video

nius...

- 16MB BAM PCI Diamond Viper graphics accelerator, 2MB VRAM

■ 15" FST-NI color monitor, LR \$3,449

w/ Matrox graphics and more!

- = 16MB DAM
- 1GR (8.5ms) IDE hard disk
- PCI Matrox MGA II+ graphics accelerator, 2MB VRAM
- 2X CD-ROM drive ■ 15° FST-NI color monitor, LF

\$4,349

Optional onsite warranty from IBM:

Just \$29!

PENTIUM PROCESSOR M/ EISA /VESA

O DESOF/VI

- Pantum property (C) Milit
- 64-bit CPI Limemonu-cache data nath
- 255KB | 2 cache ■ 230ND L2 USUS
- 6 FISA 2 FISA/VESA sints
- 540MB (12 ms) IDE hard disk
- 6 down hour
- Interested 32 bit 900.2 controller = 32-bit resolute socialistic 1MR
- 14* SVGA-NI color monitor I B
- 3.5° 1.44MR diskette drive
- 3.3 1.44MB diskette drive Learnark PS/2-style 101-key keyboard ■ MS-DOS 6.2. Windows 31. mouse

\$3.279

CD-ROM AND MULTIMEDIA KITS

Double-Speed Drive Kit 2X CD-ROM drive

■ Motorized trav ■ Kodak Photo(C) - and multisession compatible \$100

- Double-Speed Blaster Kit
- 2¥ CD-ROM days ■ SoundReder*compatible 16-bit steed sound card with CD-ROM interface

2 desktop speakers

- \$320
- Drive and Sound Kit
- CD-ROM dave
- Pro AudioSpectrum 16-bit sound card

2 desktop speakers

\$179 (limited quantity)

Stereo Sound Kit

- Pro AudioSpectrum 16-bit sound card
- 2 desktop speakers \$159 (limited quantity)

DV2 SE MU- SVETEME W/ OPTIMIZED DESIGN

O DASSIAN

- # 486CW2 BS MET
 - Lingradable to Pentium technology
- 256KB WriteBack I 2 cache
- = SMC DAM more 100MO ■ 4 16-bit ISA 1 32-bit VI bus slot
- Ungradable to PCI
- 440MB (12ms) IDE hard disk = 5 drug bar
- = 32-bit local type IDE controller
- 32-bit local bus graphics
- 15* FST-NI color monitor, LR 3 5° 1 A/MR diskette drive
- 2X CO. BOM drive ■ Learnark PS/2-style 101-key keyboard

■ MS-DOS 6.2 Windows 3.1 mouse \$2.419

@ 466I/VL minitowe

- w/ all the above and:
- = 16MR RAM ■ 6 drive have

■ 7 16-bit ISA 1 32-bit VI bus slot \$2.829

Special offer

With every AMBRA system, you receive a complimentary "Try and Buy" software sampler on CD? Plus, you can take your pick of business, home recreation or entertainment CD Packs — 5 discs for

only \$79.00!

Call for details!



BI LIE LIGHTNING BEST BUYS

@ DASSBI

- 486 Rue Lightono" 66 MHz ■ Uppradable to Pentium technology
- 16KB | 1 266KB | 2 cache
- = SMR DAM may 64MB
- 3 16-hit ISA 2 32-hit VI hue cinte
- 440MR (12ms) IDE hard disk
- 5 drive havs ■ Integrated 32-bit SCSI-2 controller
- 32-bit graphics accelerator, 1MB
- 14* SVGA-NI color monitor, LB
- = 2 6° 1 4/M/D diskette dave ■ Integrated Ethernet 10Reset
- Leymork DS/2-et/le 101-key keyhoszd ■ MS-DOS 6.2. Windows 3.1. mouse

\$1,999

3 BL minitower, w/ all listed features of 9 plus...

- # 6 16-bit ISA 2 32-bit VI has sints
- 540MB (12ms) IDE hard disk
- 6 drive bays ■ 2X CD-ROM drive

\$2,289

EVTRA ACCORDARIE MODELS

O DASSDYA

- 496DY2 GE MU-
- Upgradable to Pentium technology ■ 126KB I 2 cache from 256KB
- # /A/R RAM may 36MR
- 5 16.ht ISA sints
- 340MR (12ms) IDF hard risk . ■ 5 drive havs
- 32-bit incal bus IDF controller
- 32-bit graphics accelerator, 1MB # 14" SVGA color monitor, LR
- = 2.5° 1.44MB develop draw ■ 3.5° 1.4-wwo uswelle unve ■ I remark PS/2-style 101-key keyboard

■ MS_DOS 8.2 Windows 3.1 mouse \$1,739

ARSDXA minitox

- w/ all the above a - CARD DAM
- 440MB (12ms) IDE hard disk # 6 drie har
 - 8 16-bit ISA slots ■ 15° FST-NI color monitor, LR

\$2,149

CLIM DRICED SI IMI INE

@ S450DXA

- # 496DY2 50 Mile ■ Upgradable to Pentium technology
- 128KB I 2 cache - stan Date
- 3.16 bit ISA sints
- 240MR (15ms) hard disk
- 3 drive bays ■ 22 bit IDE controllo
 - 32-bit graphics accelerator, 1MB ■ 14° SVGA color monitor I D
 - = 3.5° 1.44MB diskette drue ■ Leymark PS/2-style 101-key keyboard ■ MS-DOS 6.2 Windows 3.1 thouse

FIRM CONFIDENCE.

AMBRA COVERS YOUR COMPUTER WITH A 30-DAY MONEY-BACK GUARANTEE AND A ONE-YEAR LIMITED WARRANTY, ANO, FOR JUST \$29, YOU CAN PURCHASE AN OPTIONAL ONE-YEAR IBM® ONSITE SERVICE WARRANTY BACKED BY 10,000 TECHNICIANS COUNTRYWIDE! ALSO, YOU CAN RELY ON EXPERT TECHNICAL SUPPORT-TOLL FREE, 24 HOURS A DAY, SEVEN DAYS A WEEK-REGARDLESS OF THE WARRANTY YOU CHOOSE.

FRFF CUSTOMIZATION.

We'll custom-configure to your exact specs — with no extra service charge or delay.



Our lines are open weekdays 8 am to 11 pm. weekends 10 am to 7 pm (ET). We accept major credit cards, as well as purchase orders from qualifying businesses. Pick up the phone today



HELP LINE

Pari of an occanional series of columna aimed at providing users with answers to technical questions about their softwars. This week's questions and assess were provided by software services provider Corporate

Microsoft Corp.'s Windows Version 3.1:

Q: I think I accidentally moved the Program Manager window off my screen. I cannot get it back. What can I do? A: If you move the Program Manager window

A: If you move the Program Manager window off the screen and cannot bring it back, press Ait-spacebar, type M (for Move) and press form

Enter.

This places an outline of the window on the screen, which you can move using either the mouse or the arrow keys. When the window is positioned where you want it, press form.

Q: For some reason i cannot find my icon to isuach Windows' Write. Is there any other way i can get into that application? A-If you cannot locate an iron for an appli-

A: If you cannot locate an icon for an application, you can stall been the application if you know the name of the executable file. Select Run from the File menu, enter the executable filename in the Command Line box and size for

For reference, the following are the names of the main icons supplied during installation of Windows: Program Manager: PROG-MAN,EXE; Paintbrush: PBRUSH,EXE; WriteWRITE DE; File Manager: WINFILE EXE; Terminal: IEMMINAL DEI; Windows Steip, STIM-DEI; Onweste Map; OrdMAND DE; Object Packager: PACAMAER DEI; Clock COLOC DE; Glacitater OAL DEI; Marco Recorder RECORDE REI; Pinti Manger: PRINTIMAR DE; Oliphousi's CLIPBAD DEI; Obbessie: OLIPBAD DEI; Obcontrol Reiner (ONTROL DE; Ontrol Packager) CAMDINEL DEI; Solveyab DEI; Dei Steip Sound Recorder: Schill DEI; De Weit-Sound Recorder: Schill DEI; De Weit-

Microsoft's Word for Windows

of fat

Q: is there any way to insert the filename of a document into the header or footse? A: To insert the name of a file into the header or footser, select View/header or View/footser. Then select insert/livel/cooses the File same field from the first and press OK. The filename is placed in the header or footser when we want to the header or footser when we want to the file of the header or footser and will appear when you

Q: If I create a new template, is there any way I can add a description that will appear when I click on the template under File (New A: You can add a description to a template that will be displayed in the Description box.

meader or room; should be

To do this, open the template, select File/Summary Info and enter the description in the Fille field.

Microsoft's MS-DOS Version 6.2

Q: Is there any way to step through a batch file to help debug it? A: To step through a batch file one line at a time in MS-DOS 6.2, enter the command "COMMAND of KS BATCH BAT."

DEE: Character Mag: CHARAMP DEE: Perkages PAZAGER ERE: Clock: ERE: Calculate: CM.C.DEI: tender INCE DOES DL.II Plent Manter Control (C. 1997) DL.II Plent Manter Control (C. 1997) DL.II Plent Man-D.DEE: Callender: CH.ENDAR.ERE: [Panel: CONTROL ERE: Cand Fille-According to the Red Bank, N.J., com-

According to the Red Bank, N.J., company, this version provides uners with a way to organize, store, view and share information. New features include electronic-mail

New features include electronic-mail enabling, dial report formatting, agest event triggers, three-dimensional dialog boxes and fuzzy global search. Other functions include task automatics and the contraction of the con-

dar and contact management
Prices start at \$385.

> Jensen-Joses
commission.

Spinnaker Software Corp. has annumered Version 2.0 of Calendar Creator Plus for Windows, a calendar publishing application.

approxision.
According to the Cambridge, Mass.,
company, the product allows meers to integrate "hig pictures" and publish calendurates on virtually any size paper.
Users can design calendars that display black and-whate photos. A collection of never endendar decime called.

QuickStyle is provided.

Also included is Power Album for Windows, an image organizer, browser and retriever for acanned images, graphics

Calendar Creator Plus for Windows costs 869. > Spinnaker Software 6517: 694-1200

Foundation Microsystems, Inc. has in troduced Charts Now, a Windows-based graphics editor for crafting presenttion-quality charts and schedules.

According to the Alameda, Cailf., company, the product generates-easy-to-read organization charta, flowcharts, blockdiagrams, network diagrams, project schedules and view graphs. Users have control over the position, font, atthe said color for each task and

symbol on the chart.
Features include drag-and-drop editing and intelligent wizards for designing common symbol grouping for hierarchical organization charts, networks, flow-charts, insked chains and caseadou.
Charts frow requires Windows 3.1 and

costs 809 Si.

Foundation Microsystems (310) 814-1696

Tri-Star Computer Corp. has an-

nounced DesignBook, a notebook for designers.

According to the Chandler, Ariz, company, DesignBook is available with up to 20th bytes of RAM. When connected to an external monitor, it provides up to 105-by-765 pixel pin-point color resolution.

DesumBook also nifers un to 340h.

bytes of bard-drive storage and allows for internal and external displays to be simultaneously viewed. Pricing starts at \$1,605 for a 456/38XX Monochrome DesignBook with 4M bytes of RAM, 3%-in. floppy drive and a 200Mbyte bard drive.

▶ Tri-Star Compute (809) 951,3401

Masternoft, Inc. has introduced Version 6.0 of Word for Word, a document conversion utility designed for the Macintosh. According to the Scottsdale, Aria.

Document Converters and more than 15,000 user-selectable conversion combinations.

Apple Computer, inc.'s Macintosh

Easy Open extension is included free in each package. Word for Word-Macintosh Version 6.0 costs \$149.

(602) 948-4888

Tektronix, inc. has announced Phisor 2201 and Phasor 2208 thermal color printers. According to the Wissowille, Ore, company, the printers provide 600by-300 det/in. output with their TekColor Super-Cell 600 technology.

pages per minute, flexible network connectivity options and a patented Color-Cont technology that enables printing on most laser papers.

The Phaser 220E and 2391 are avail-

The Phaser 220E and 2201 are total able for \$3,895 and \$5,995, respectively. > Tektroniz (593) 627-7111

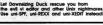
Product shorts

SuperMac Technology, Inc. has annced the Spectrum Power-1152, a 24bit color graphics card. The product is compatible with all standard Macintosh models configured with NuBus slots, it offers increased QuickDraw graphics performance and image processing co. celeration in a 7-in, form factor, Cost; \$1 399 SunceMac Trebnology Sunny vale, Calif. (408) 541-6100... Micro Touch Systems, Inc. has introduced the Tenelbint-DS17 Touch Monitor a 17-in fint square touch monitor. The product nerwides high refresh and flicken-free resolutions of up to 1,290 by 1,024 pixels and incorporates an ultrafine 0.28 mm dot pitch. Cost: \$1,975. Micro Touch, Methurn Mass (568) (56-900) ... Sirius Software, Inc. has introduced Sirius Business Accounting Version 3.1, a highend, multiuser accounting and management package with 18 integrated apolications. The product includes feati such as user-changeable pop-up help screeps, pop-up notes and a menu har at the tonof the serven with frequently mod office and utility functions. Cost: starts at \$900 String Software, Dayton, Ohio (515) 228-4849.... Strawberry Tree has announced Datasbuttle, a series of peripheral analog input and digital I/O devices that connect through the parallel port to deskton and portable PCs. Reatures include easy installation and operation, automatic self-calibration and a high-speed pass-through interface, Da-

tashuttle is available in t2-bit and 16-bit.

Tree, Sunnyvale, Calif. (405) 735-8800.

odels. Cost: starts at \$895. Strawberry





wrk/grp

for open systems 1-800-228-0255 YOU MIGHT HAVE HEARD THAT A CLIENT-SERVER ARCHITECTURE THAT ALLOWS YOU TO MANAGE MISSION-CRITICAL APPLICATIONS WITH COMPLETE CONFIDENCE IS JUST AROUND THE CORNER. ACTUALLY, IT'S JUST AROUND THE PAGE.



INTRODUCING LEGENT'S CROSS PLATFORM ENVIR

At Legent, we've spent three years and \$50 million to engreer a technology called VEX (Cross Platform Environment) that offers deinduced systems management facilities with the robustness and functionality previously only available on maintaines. VEX was developed because heterogeneous platforms and client/herver environments demand new approaches to systems management—not just pointing del systems management tools on a platform—by-platform basis. VEX is a broad, newly engineered portfolio of robust systems.

management facilities built on the industry's best-of-breed middleware. XPE facilities plug into a common badqulare to allow you to address your needs, as priorities dictate across hardware platforms and operating system—from the host to the delatop—in audited manner. XPE offers best of class functionality in such key areas as: "hobbern Management." Performance Management "Distribution Management." Operations Management "Distribution Management."



ONMENT FOR MISSION-CRITICAL CLIENT/SERVER.

*Software Administration *Distributed Backup & Recovery

Legent epands the concept of open systems from the manframe to the disktop because we are the only 50' that will publish. Afts to allow you to integrate existing internally developed applications, or your favore third-party package, across your enter-enterprite. And you can rely on XPE because it is backed by Legent, a company that is, known throughout the industry for iso unbanding company that is, when throughout the industry for iso unbanding company services. that allows you to manage distributed systems with complete confidence, your search is over. Well, actually it ends on the next line, with our phone number.

For more information or a copy of our free mission-critical Client/Senser kit rall 1-800-676-LGNT.

LEGENT
THE EVOLUTION OF CORPORATE COMPUTING



These IBM monitors can work with any PC. Suddenly, things are looking better all over.

They're here. They're everywhere. They're the new IBM monitors. They're on Compaqs, on Dells, and on Gateways. They're on any IBM-compatible PC out there.

Windows never looked better. You'll see crisper characters. Large edge-to-edge image. Change the picture. It adjusts to you. Adjust the digital color. Adjust the screen geometry. No more re-adjusting. The microprocessor remembers it all. Look at any of our screens. They 'e flicker-free, Always IBM Monitors 180 9241-3 compliant.

180 9241-3 compliant. Excreds existing standards. Energy Star compliant. Uses less power, russ cooler

MPR II compliant. Fower electric and

Plug-and-run compatible.

Works with all IBM and IBM-compatible PCs.

IBM designed and engineered.

No one knows

No one knows IBM compatibility better. 1024 x 768 resolution, 28 dot pitch, 75 Hz. Quality you can see. bright and sharp. All with low reflection.

Look at our prices. Very competitive. Look at our support. Unsurpassed. Free onsite service. And a toll-free number for technical support and assistance.

See the light. With the new IBM monitors, other PCs have never looked better. For additional information about new monitors, call 1 800 772-2227. To order, call toll free 1 800 426-8661.*

. "S are-entropit, M-F, S are-7 pm, Sal, EDT EM as a registered indemask of international Business Machines Corporation. All other products are trademasks under registered tenderates of their respective holders. In 1933 SM Corp.

document tracking

Dy Michael Ettamould

Would have revocal trace' worth of information stuck of our we as have several trees worth of information stack on our slone find things tucked away in other corners of the com

nty. This word of new bloom has led the information contains staff. cense for Fulcrum Technology, inc.'s Ful-Text and Search

Tools sourch and retrieval products as part of a three war \$2 million recognoscing project million re-engineering project. fort at document management in a multipliet form oppingment "no. florts a new use of the technology and it's probably a growing trend " said Jamie Popkin, pro

gram director at Gartner Group. gram director at Gartner Group. usid National Semiconductor white not the first remners to size a large site of the license. for such software, was in the vanguard.

What these companies are doing differently is "not simply fusing the software I as an electronic library for storing and receiving durant ments "Ponkin said National Semiconductor spent \$825,000 for 5,000 licenses

to bein its employees find useful and sometimes critical cornorsets information according to Josephine Murray on intermed technical exposultant at the Santa Clara Calif. comnear The firm expects its purchase to cover its relieus plane through the end of 1994, if not beyond.

"We wanted to improve communication among groups Murray said. She said that in a large corporation, information tends to accumulate in a "silo effect" that prevents other groups in the same company from knowing where things "Our employees have said that is the biggest burdle to doing their jobs. This is an attempt to break down that herrier and to provide quick and easy access to knowledge that exists in the company." Murray said.

Tracking more St

Search tool smooths | Document management system to debut

Ry Michael Virgard

#A 1-year-old research effort has year-one learners manage ment system that uses obi technology and a relational datase engine to manage and track

Second on managed and partial funding from Xerox Corp's Pale Alto Research Center the Per-

manifest content from Decementon Inc in Discounters Calif. dif. fers from traditional document manage ment manage

control of every appli-Instead the system creates an object creates an object

of the last to the last tions of particular documents files or nicens of data in the Lavored on top of those object storm

manifes on the comme is a set of library ser-. vices, a workflow engind and libric that lets neers link various files into a single docu-

This latter capability is arouided uning distributed relational database technology and a transaction menitor to manage the relationships among various com-

Howard Shao founder and sice noward Seao, Report and the

election. and the second state of the second second second testrator Computer Sciences Com in San Pannelson It is assert to to build a document tracking system

for a West Coast-based sharms and a second column del disconsissioner.

tom in the state of Wisconsin which is nonemples its informs the same and the fact of tion systems services for the legi one Committeed a Sporttle officer a Consuming a ocurrentnee. Andersen Consuming cause Doe

ture's drufting of bills anid Ander non Consulting project manager Matthew Shanghan Shanshan said that white Ari or offerings, it chose

Documentum cause it was the offy product to provide a produce up provide a or solution that rould support hundreds of description and in clude support for

workflow. Desarro, which is available on Univ contents from Company of the Compan inc and Hewlett. Packard Co. running the Oracle Corn Ora-

cle relational date invitem conta about CA 2000 men ment from Whener system The

price falls to \$500 per user for a 1,000-user system, it supports Windows, Macintosh and Unix eli-

Support for Unix servers from ISM. Microsoft Corp.'s Windows 15th, sucroson corp.s windows RDBMS will be added this year.

December was relationed database technology to Hall Catalogical descriptions of the second software. We looked at other doesment management systems and we looked at the interiest publish

ing system but this more in the

Southility and the engineers the

completely on some backing for"

said period manager Stess Serily

ters said Morrell who is man

Unix clusters becoming more popular

Dy Jose S Borman Information systems managers will use

elustered Unix systems to lend high levols of evallability and throughput to business-critical applications on Unix platforms, according to a recent International Data Corp. (IDC) report. Although several Unix systems ven-

dors already self-clustered systems, IDC expects more to join the trend this year, Ineluding Hendett-Packard Co., Sun Microsystems, Inc. and Digital Equipment

Clusters will be used by sites that want to ensure continued operations if any ni their Unix machines fails, according to the report, "Commercial Unix Clustering Technologies and Strategies. "As more companies distribute major

siness-oriented applications, they will [be viewed as] mission-critical and will

require this level of canability" said report author John Morrell. Even vendors that already soil electored systems will add more reliability features - system management, backup/restore and clusterwide assume services - this year ho anid.

Even distribution Modeled on the clustering technique

that tie Digital's VAX computers into a single VAXeluster. Unix clusters are glood together with distributed lock managem (DLM) Multiple machines each with its own copy of the Unix operating system, can access a single pool of red disk memory without grabbing the same data at the same time Instead CPUs that request the same data record are "locked out" temporarily.

Load-balancing of production work loads is one key motivation for using

name of coffeense recovered for 100's Ad d Operating Environments service "A regular SMP [symmetrical multiprocessor! box is really mod at scaller un single applications and even multiple applications," Morrell said, "But multi-

nie applications fin a single SMP me chinel can interfere with each other " in ster he noted, users can dedicate an application to run on a perficular ma chipe, avoiding contenting for comput

Many sendors offer DI Ms to facilitate elustering for database applications. among them Sequent Computer Sys-Inc., Pyramid Technology Corp. IRM for its RS/0000, ATAT Global Sola tions and Data General Corp. Many of these machines support Oracle Corp.'s Oracle 7 Parallel Server database softwere Other database wanders may also lend cluster support. Including the ASE Grown Inc 's Ingres Marrell said Sun shipped he first SPARCelusterin the second secon

ne NES file servere e database version for multirigabyte Oracle databases is due this year Sun has said But IDC expects several other Unix players to field DIM-based clusters in 1964, including HP Son and Dientel

One consultant who builds clustered RS/8000s said one key benefit of the chrs. tering technique is Unix server support for more client muchines. "If you've got a multiprocessor, you've

got one [path] way into a machine," said George-Lingrott president of Clam Auso ciales. Inc. in Cambridge, Mass. "With loosely rounled moltiprocessing each machine has an independent network monte into it and only of it - and all of the machines are pulling data off the same shared disk." Clam helped IBM build the clustering configuration that can link up to four RS/8000s

Timili Systems Inc. recently autilized a strate. or that will take it bound its surrout niche in gy that will take it beyond its current mene in inapartment software and services for betommanagement sottware and so

beous distributed systems. work that monitory linky pretame will extend

the reach of its applications to Norell Inc NetWare LANs by next month and to Windows-hazed Drie by the third quarter

It will do no by allowing yours to install on DCs object extented out none Remoted that marks sub-6K bytes of memory. These surents will monitor PCe from a central Tholi Management Engineered framework running on a linix or NotWisco file server The software nemate any painted at \$100 per DE

agence are Conice of TheditCouries 1 & s.s. cohenced musica of a Univ. hased software distribution stillts national at \$2 600 will be available next month for NetWare servers supporting up to 50 PC clients.

and the execution of a sec ing arm to aid in systems integration and distribution afliances with Epoch Systems, Inc. for backup/restore software and AutoSystems Corp. for jub-scheduling software.

Thereis Allert lead a service of total sustance AutoSus package, will ahin in the first quarter at a server price of \$9,500. Thyoli/EpochBackup. a version of Enoch's Enterprise Backup nack. age, will shin in the third oungter priced at \$140

to 8995 per node. Systems integration is a major concern for users of distributed systems, industry analysts

Tracking

CONTRATEDEROMBACES

National Semiconductor's Knowledge Initia tive project started with two pilot projects.

The first was to create a way for users work uron anything from a PC to a Unix workstation to a VT or 3270-type terminal to query documents from any other platform. National Semirenductor has achieved that in a text-only implementation which it is rellingent to various neers according to Murray

The second pilot involved a failure-analysis program used in its testing inhoratories. Anal ysis reports include electron-microscope images managed by an interioal, inc. production system that works with Fulerum's software. The goal of this project was to give access to the images as well as the text. This pilot is also finished and being rolled out across the

While National Semiconductor's IS depart ent does not have the power to mandate that all users use the Fulcrum-based systems, the apparent success of the two pilots, which involve key norts of National Semiconductor's business, should belp persuade other departments to do so

sixe arrays of operations againstions for distelbuled exclusive Dut OpenNicon positroms are placed who other vendors' system frameworks and CA has not set not the full frees of Works, and CA has not yet put the sun inree of near heat accord

"Those are looking for a cinete rendered to solve all their systems manufement problems and there is no ment proceems, and there is no er an applyed at Meta Group Inc. The fire hour rumed up to play in (Tholi's) framework and (Tholi) to easing it has a professional onessization to belo users implement evaluate management armi-

> Bringing PCs into the product line and breaking out of the Univ. only night is important to the firm's continued growth said Tivoli Chief Eventine Officer Presi Moss. "We see a large number of contomore installing links someone with PC elients as a fundamental computing cavironment ***** raid lines can install Tools

Courier 18 to deliver software ungrades throughout a composition's LANs. In a senarate development, Xilinen Co. an tounced it would accept salested marts of the Tivoli Management Environment objectoriented framework as part of a works or doors

on Culti and

destina effe

- HY

ment that will evolve into an Y. Onen execition tion Analysts said Thosi sought X/Onen's on nerval as a sisted to large was sites that its technology will become part of an industry standard So for about 150 corrections have simed up for Timil's menomenal forms works, including discount brokerage firm Churles Schwab & Co. and GTE Telephone Opcontinue in Thomas Pie

Tivoli to support NetWare, Windows Informix/Windows NT hundle chases Univ

D. Plant North

As promised has months are In-As promised two months ago, insoft Corn recently shipped a hundie of the Informity SE detabase and the Windows NT operating system The nackers has delight ed counted before in societies Third-party applications com-

names that heretofore enlared to Dala - cont perturer Consents Decomic Inc and Dummer Software inc. said they welcome the chance to enter what they think will be a incention market off the shell software for Windows NT



based programs access informing Informs SQL application development tool

Informix-Net PC, a connection between PCs and informic databases

Out Sobored Other down

Though these is little in the acreement for current informity database users who have disouth from Informix the company is smart to support an emerging market said Biohard Finkelstele a consultant at Performance Com-

"NT is really ening to give I'mly a run for it " Finkelstein said The coupling of low-end detabase Informity-SE with Windows MT is nimed novemby at sixel Owele Corp's database hundle with No. tell Inc's NorWhen operating one tern Normal properties offer Oreste Ware a combination of the Oracle Ware, a commission of the or no. reentually NetWare 40 or Hely. When Teaming up with operating system makers is one strong way

for database companies to push

Most Informity Missessoft bundle

client/server systems, he said.

uners will keen Ilnix as a beave duty server system for high-vol outy nerver system for again NT as a midweight platform for workstroup or departmental client/server applications, seconding to Karl Steinle, president of Concepts Dynamic a financial an plications firm in Schaumburg, ID. Meanwhile Informix is brileing its bets elsewhere The firm un-

smiled a deal last meet with Digita Equipment Corp. that puts its On Line database on Durital's OSF/I Alpha architecture by the second counter of 1994

Software AG delivers data replication tool By Cory H Anthon

Software AG of North America, inc. has been objected the data registation product Vating Transportion Description (PTS) fuellain and ORM

ETP systematically replicates updates to an Adabas data base management system on Unix or OS/2 platforms across networks of heterograpous computers. It was designed for distributed applications in which all or portions of a data-

base must be mirrored at other sites or in other processing caviroomeets. The product was introduced a year am for mainframe-based Adabas applications [CW, Nov. 23, 1982]. ETP logs each master database transaction and, at user specified intervals, applies those transactions to replicated databases. The user can specify which updates are sent to which locations, and if a target node is unable to accept the transaction, the transaction is lowered and sent armin later Unors can replicate data on mainframes Univ and OSP to

mainframes, OpenVMS, Unix and OS/2 covironments. ETP is grared for applications that do not require the more rigurous, but constraining, "two-phase commit" approach is which as update is reversed if at fails at any node on the network. Software AG introduced a product using a two-phase commit protocol, Adahas Star, last Aurust, and it is appropriate for applications such as funds transfer that require fail-safe transaction integrity. Mike Schiff, director of the data management program at

Software AG, said ETP will be the replication tool of choice for about 85% of the company's our ETP is available now for Unix and will ship for OS/2 by the end of March. Prices begin at \$200 per terminal

Imaging release

The Apple Report On PowerPC

NUMBER 2 - RISC PERFORMANCE AND CROSS-PLATFORM COMPATIBILITY

Many of the most popular applications have been or are being optimized to take advantage of the high-performance PowerPC processor.

PowerPC chips are faster and less expensive than Pentium chips – so are the personal

A complete Macintosh system with PowerPC will cost well under \$2,500, but will offer better performance than higher-priced Pentiumhased systems.

With SoftWindows, Macintosh with PowerPC will have the ability to run DOS and Windows applications, unmodified

For more information about Macintosh with PowerPC, cell 1-800-732-3131, ext. 150, in the U.S. We'll send you a copy of our informative, free booklet, PowerPC Technology: The Power Behind the Next Generation of Macintosh Systems. In Canada, cell 1-800-685-2775, ext. 910.

In the first half of 1994, Apple will introduce a new family of computers that already has the entire com-

nuter industry standing on end.

They will offer better performance than computers based on the X86 microprocessors. They will be extremely competitive on a price basis. And they will be compatible with Windows and DOS applications, by using SoftWindows software.

They will be based on the revolutionary new PowerPC microprocessor, created jointly by Apple, IBM and Motorola. For the first time, desktop personal computers

For the first time, desktop personal computers will take advantage of RISC chip architecture previously found only in high-performance workstations. This advance will make possible quantum improvements in the way we manage and work with information.

RISC vs. CISC.

Termendous advances have been made in CISC architecture over the years However, the physical limitators of the new, high-performance CISC design mean that CISC chips must be significantly bigger and more complex, and must run at hotter temperatures to perform the same tasks as commanable RISC chine. Consequently, the newer



generation of CISC chips, like the Pentium, are much more expensive to manufacture. Which means that personal computers powered by PowerPC chips can offer a significant advantage in price as well as in performance. As you can see on the chart, RISC microprocessors offer dramatically greater potential for growth, leading us well into the next certary and increasing the practicality of features like voice recognition, videconnierance, object-owneed software and multimedic capabilities — functions

that will be integral to doing business in the 21st century. More commatible personal commuters.

Apple's new generation of Macintosh' personal computers built around the PowerPC chip offer the ability to run MS-DIOS and Windows applications, as well as Macintosh software. Moving from one environment to the next will be seamless and even more importantly it

will be effortiess.

PC users who move to Macintosh with PowerPC
will gain access to the large number of new applications
which take advantage of the incredible performance of the
new PowerPC chin.

Higher-performance optimized applications.

When PowerPC microprocessor-equipped Macintash computers begin shipping, software developers including Mcmosoft, WordPerfect, Adobe, Aldus and Claris will begin shipping new versions of their most popular software, specifically rewritten to take full advantage of the new processor's carabilities.

These optimized, sometimes called "native," applications will offer significantly faster performance than their MS-DOS, Windows or current Macintosh counternarts.

Unprecedented value.

Because RISG-based personal computers cost less to manufacture than equivalent systems based on CISC chas, sie will be able to make this technology available for well under \$2,500 for a compiter mainstream deskup systems Competitive with a lower-performance, Pentium-based PC-" Watch Apple

Workgroup Computing

an has introduced Commander FISA 6 a executive information system 48-4.0, a generative unormation system. According to the Ann Arbor, Mich. dimensional data analysis somer with an enhanced Windows was interfered electronic mail interesting and interesting especialities and expended platform runand to bedrete OCO and Minneson Com's Windows VT comon

Orp. 8 Windows N1 servers resistres include an emissived desarroy and other multidimensional and relational data: Dynamic Link Library conneed for commentarity to complex or port for connectivity to compact or to Development Corn's CCMc2 and the Managing Application Decrease mine in terface messarine backhone standards If also exposts multimodia technologies

Commander ETS 4 Deceta \$95,000

PCOMMUTE.

ATAT Global Information Solutions has introduced Starfman Services for Mismooth Come in Mark According to the Duston Ohio compaare the enterest effects Mell compa-

seamlessly operate in a Univ environmost and access the dobal massaging

The product comprises a family of The product comprises a manny or link nersonal productivity measuring sendent Additional definited natural service reasons actioned systems

companers are not ATAT Found into Commission office a cont ety of delivery ontions, including Y 400 telev and competions to other electron in mail and country

Printer for StarGeous Services for Mi Tricing for consurvey of towns manistarts in 81,050.

Sofutions Con-

Time your move to a client/server financial system now.



(Actually, 8:30 a.m. in the lobby.)

The premier providers of advanced technology solutions invite you to attend Ideas & Technology Cincinnati A Forum for the Financial Practitioner. New York City CLL You know it could be better: You know you need to Denver change but you may not become how or own what If you've Richmond considering client/server, mend the morning with us. Grand Rapide San lose Dun & Bradstreet Software and Price Waterhouse will St. Louis provide because addresses on reactival techniques and the Los Andeles enabling tools to advance your financial optanization. If Louisville sou're interested in seeins what client/server can do for your Milwankon call 1800-502-3030 and make a reservation to ioin us.

Laswarks Technologies has an nounced BootWare Manager Windows unced monomore subanger According to the Mississange Outerio According to the Missessauga, Omario, company, the product enables a Novell, los LAN administrator to create man-

age edit undate and diamosa central ined monkstation heat files from a single location Pratures include an update function diagnostics full reporting functions and

the shillty to search by node address imare, name and image date. Boot Ware Manager costs \$250 per net.

most lisonano Lansoorks Technologies (416) 928-5598

Design Data Systems Corp. has announced a Windows based menhicol as or interface version of SOLTime its client/server financial application.

According to the Largo, Fig. com the product interrutes Oracle Corn 't Onacie 7 database and Oracie's CDE tool art. It features shared charts of accounts multicompanyidisticion consoli dation, dynamic display of graphs and charts, zoom screens for account detail, user-defined query screens and ad bor

report writing.
This release supports Windows-based PCs and the Macintosh as well as the Window System and character-based

Prices range from \$19,000 to \$30,000 Derian Data Systems OFFICE PARTY

Product shorts

Paradise Software, Inc. has announced Version 3.1 of the Unifix Toolkit a softwere tool kit for the decompression and display of digital video from hard disks and CD-ROM or for transmission over a network. This release has added support for San Microsystems Computer Corp.'s SunVideo video capture and compression card. Cost \$200 for a Uniffix runtime parkage Paradise Software Jameshurer N.J. (608) 655-0016.... Hammersly Tech nology Partners has announced Utopia Version 2.01, a product designed for hum internal bein desks. It includes Ornele Connect for Utopia, an Oracle Corp. da tabase connection that provides increased performance and reliability Cost: Starts at \$5,500. Hammersty Technology Partners, San Francisco (415) 856-1300

ReopleSoft would like to suggest 2 key words to look for in evaluating client/server financial applications:

"IN PRODUCTION"

Most application vendors are still new to client/server. They're still making promises, announcing plans or experimenting with new technologies. They're simply not prepared to support you in a client/server production environment.

PeopleSoft client/server financial applications are in production. Today. At companies who are benefiting from our six years of experience with client/server application solutions.

What's more, only PeopleSoft applications give you a choice of six RDBMS platforms. So you cart use the same applications whether you're upsting to a mainframe, downsting to a LAN, or rightstring to anything in between. You'll find that PeopleSoft delivers the gower and innovation of applications developed specifically for client/server, plus the case of use that comes from our familiar

Windows interface. And our applications are inherently flexible, functionally rich, and easy to customize as your business needs evolve.

That's why PeopleSoft client/server financial and human resource applications are the choice of 322 companies, worldwide (As of January 1994.) With more signing up every day.

Get all the facts from our new white paper: Client/Server Business Solutions For your free copy, and a schedule of our client/server seminars, please call 800/947-7753.



HE LEADER IN CLIENT/SERVER BUSINESS SOFTWARE



LESS IS MORE.

The more your network depends on a traditional router-based architecture, the less success it will have concentrating LANs at your central site. You'll be burdened with ever-increasing numbers of routers, plus all the added enuironment of the narallel network that supports constant



America, call toll-free at 1-800-777-4005.

. bit rate traffic such as voice and SNA. Enter GDC's TMS 3000 internetworking platform. It concentrates up to 520 remote LANs in the same space a large router takes to handle 32. We deliver that 16-to-1 improvement because when it comes to space, equipment, and network

complexity, less means a lot more cost savings for you. So before adding any more traditional routers, call today for a better solution at +1,035-792.0542. We'll send information on the TMS family, plus "Creating Networks Without Parallel." a brockure on GDC's unious architecture. In Noval

General DataComm

WORLD CLASS (METERORING)

World Headquarters 1-209-574-1718 Hong Kong 852-526-5511 Canada 1-416-496-5100 Assardina 61-2-956-5399 United Kongdom 64-794-774868 Europe. Africa, Middle Eart Headquarters 33-1-45133-470 Janua 51-3-3661-1700

Client/server complicates licensing

Cerusaia

Software Reensing for enterprisesside cientiantes installations has become a thentwerver installations has become a

hommelsonds and sourcing some IS man

Teambles in the marks

Sample colleges liceasing crossing and the emblane raised for year and warder

....

o Legal liability for

fiered upgrade

consumeration

Constraints on

Constraints on

CPU fees

Consciones on

Added distributed

No credits for old

same MIP

agers to long for the old monolithic n/rume priolast el ruetume On a hopeful note, users and vendors

Manage ---

Loss of revenue from bootlegged license fees.
 Equipple controls on un

coss of revenue from multiple license fees and from added non-

Loss of revenue in distributed topology.
 Costs not covered by

tions o'll (RS) group's Livensing Task Force are seeking to come up with some hammering out elient/server software it.

dustined terms and attendance for ensing mater -t-Monathia Needl he is about to Meanwhar, Novem, mc. is more to vice, which is said to support a variety of licensing atmetures in a standardized

fashion (see story page 39)

So many choices These initiations address from different ander a basic difficulty with client server software liceosing the broad range of possible ways to value and price soft

One area that vendors and users have strumfed with for years is user-based vs. host or service-based pricing struc-

By example Passan Systems Inc. customers pay for the yendor's basic set of directory file and print pervious acconfine to how many more access a six es server concurrently, a Banvan representative said. A company pays for a

In contract Navell's related model charges a company for each user who company for each user wire time. Thus, a company with 700 users who want access to all five servers would home to they for \$ 500 meet process it

The comparative freedom of Banyan and weeks to soom from comme to comme without being characterist and of the ma for places that David Day noticed when

he moved from Noveli to Banyan remin ment several weeks are he said Furthermore was based channel for network services and software nack ages network services and software package

to treak nears socies seems sights to new or relocating overs and discontinue

rights for departed employees. Day said part of the sea comproved they said. mule more to a mainframe bessel imple mentation one fee for software and then son can been as more uncer as you word polegit "he said

Housever not all meets feet that was Digital Equipment Corp. was criticia several years back when it announced it would charm nor acreim rather than non-moon for its Dythousaks metausak some er plot form. The waiting came from comnumber that sounted to people a laser number of north with just a few basic Pathworks services, such as bost printer and file assess

Licensing syme 50 ns an international standard," said Don

Fee required to Need to renegotiate with outrourse coffware comment former board on whether that server will served to 50 too - m of change legal entity April - or 250 users' concurrent access. Federal encryption policy wins few fans

By Gary H. Anthes

The Clinton administration's recent ncement that it would promote but not mandate the use of a controversial encryption technology has failed to mollify users, vendors and civil libertarians. They continue to argue that it will now unnecessarily costly, harm II.S. reness and contribute little to

Pederal officials said at a press conference here that despite waves of opposition over the past nine months, the government will make "key-escrow encryp-- developed by the National Sees. rity Agency for sensitive but nucleasified telephone communications - a volumtary federal information processing

The technology, which is called Clipper is intended to give low enforcement and national security agencies the shill. ty to uncommble goded wore or date messages from suspected criminals while miaranteeing constitutional safemuards to legitimate users. A secret aigorithm embedded in a chip would use two encryption/decryption keys maintained "in escrow" by senarate government agencies and would be subject to sponsibility in Washington.

Sobel said organizations such as banks that now use other forms of encryption could be required to use Clinner for their divergment dealings, which are considerable. "It's like saving you can use VHS videolapes if you want to, but if

you want to submit something to us. Their intent is clearly to make it the you're ming to have to dive it to us in hedo facto public standard that summone will van." naid David Sobel, legal counsel

ta. Who is guing to say, 'OK, I'll just have hath of them?

Pluses and minus

Other osers werry that foreign concern loery of entrusting the keys to sensitive information to third parties, will not have Clinton based communications devices Whateman culetion is managed that to be a clobal polution and has to be accorded the American Putroloum Institute in Wheehington

The administration may have made it more difficult to achieve a single stokel standard for encryption by announcing it will allow relatively free export of Clipper-based devices, while continuing to restrict export of software employing the popular Data Encryption Standard (DES) algorithm. But the State Depart. ment said it would streamline the evener license process in various ways.

Gilbert, information systems director at

While foreign governments and U.S. ompanies are not rushing to embrace Clipper, Uncle Sam is apparently not holdingback Raymond G Kammer den nty director of the National Institute of Standards and Technology (NIST) said that the Justice Department has ordered 8,000 Clipper-based devices and that the Defense Department will order 20,000 to 40,000 of them for use in a new con

Stephen Kent, chief scientist for security technology at Bolt Revenek and Newman Inc In Cambridge Maca maidthans could be a silver lining in key-eserow encryption for those who worry about civil "This provides legitimate access

where authorized, but it might also cut down on unaniberized wiretapping by some people in law enforcement who don't get wiretap orders," he said

Changing of the safeguard

ced "key-escrow" (Clipper chip) encryption that uses the 86-bit key ack algorithm as a voluntary federal info *Said older energation schemes, such as the 54-bit key DES algorithm will con-

of that key secrow agents for Clipper will be the NIST and the Treasurent's Antomaled Services Division. Published procedures for release

ed that it will develop a di-

CLIENT

YOU'VE GOT THE SAS® SYSTEM

Getting information you need to do your job shouldn't be a job in itself. Client/server

But what if the data is not relational? Or you need to combine data from many sources? Or moving large volumes of data across your overtaxed network is unacceptable? That's where the SAS System provides the most complete client/server solution.

With the world's leading information delivery system, enterprise data—negaridless of source or structure—becomes a generalized and available resource on your desktop, and when it is impractical to move data to your application, the SAS System lets you move your application, the SAS System lets you move your application (or parts of it) to the data. You can then turn that data into useful information using the #1 multiplatform choice for decision support [FIG.].

BRINGING IT ALL TOGETHER IS WHAT SETS US APART

Give us a call today for your free guide, Client/Server and Beyond, and learn how the SAS System brings it all together for you.



Smart phone offers treatment for doctors' computer phobia

.

Doctors are notorious for disliking computer technology, but they have gotten used to the telephone. So insurer Pransylvama Bise Shield plans to distribute "smart phones" to about 48 dentities and physicians this year for handling insur-

In essence, the smart phones fill in the gaps in the insurance company's PC-based claims-filling network, said Harry Albright, systems technology manager at the insurer in Camp Hill, Pa.

there are state a targe numeer of dectors who do not have computers or are techno-phobic." Albright said. To so we're tript to find a simple-to-use and low-cost option to get as many of these people communicating electronically with us as possible."

The first phase of the pilot program herits this mooth and puts

The inst passes or the pust person perjam begins this month and puts the phones in 28 dentists' offices. Installations in about 20 medical offices will follow in the spring. Initially, the smart phones will be limited to look-up functions, but by year's end, users will be able to fedime selectronically. Althirly is said.

Dialing for data

Bues Shaeld worked with AT&T on the application until the company discontinued development of its smart phone. Now, Bue Shield's pilot program is using the Philips Serven Phone from PHS, Inc. in Burlington, Mass., a subsidiary of European electronics giant Philips Electronies N.V.

The Philips phone has a pull-out keyboard and a 16-line text screen that provides menus and prompts for users. Medical offices can use the phone to access Blue Shield's mainframe databases to

check patient eligibility, benefits, claim

cheek patient eignousy, beneins, claim status and managed-care restrictions as well as to transmit basic claims thats. In the most likely scenario, a medical office majouger will use the phone to retrieve a patient's cligibility and adminis-

phone for the reset of the transaction and minimize the need for data entry.

Then Albright explained "They test



PHS' Philips screen phone fratures a 16-line acreen and pull-out keyboard

tell us what they did jusing the standard five-digit medical codes), when they did it and what they charge for it." A hig advantage of the full keyboard.

he noted, is that it "allows you to enter text directly without trying to futz around with the telephone keypad numbers to make it work."

The cost to doctors will be roughly \$600

The cost to doctors will be roughly \$600 to \$900, depending on features and peripherals such as printers, according to Albright.

The user interface was developed by

The user interface was developed by Dallas-based InterVoice, Inc. using the Analog Display Services Interface protocol, which allows sereen phones to become interactive terminals.

Net management framework fosters harmony

By Lynda Radosevich

At a recent network management tutorial, users learned that they should count on expending a good deal of effort to piece together a network management cyclem.

"You can't expect to buy products and call them a network management system any more than you would (expect to) buy Visual Basic and Sybase and call it a financial application," sand Steven Morgenthal, wee president of Unified Systems Solutions, Inc., a systems interventor in Mountain Lakes, N.J.

integrator in Mountain Lakes, N.J.

In part, that is because network management (see story page 87) is a value-added service for the hub and router vendors, "so they"il add the least amount of platform support that users will allow," said Jill Huntington-Lee, principal ana-

lyst at Brandywine Network Associates

How-to-galde To-ensiety that large-scale network management efforts by service providers such as telecommunications communications communicaand airlines—work well with other providers' systems. We between Management Ferum recently surveiled a strategie framework. The framework specifies how to use standards's such as Single Network Management Protocol (ONEY) and Common Management protocol (ONEY) and Common Management services have to such as the surveines based on how-standards with

Without a framework, developers' applications can conform with standards yet still not interoperate, according to Elizabeth Adams, a managing director at

Client/server complicates licensing

CONTINUED FROM PAGE 57

Management of the course of the course of comes committee initially tried to addescribe committee intensity tried to the licensing through a white naner released less March. It defined printer models that are more suitable than "conventional license models" such as hardware tien been and DC was based atmessage the

passed and FC t For example, the paper outlined topolore-based metrics that are based on nearth across a naturally and resource use metrics that "record a grouning of physical or lorical record a grouping of the coftware

Is anybody happy?

The need for more complex software pricing models is evident in current contracts, which often leave either the ven. dor or user feeling chested aser and year don courses sold

For example, with software that takes only a few appends to do its job a company pays for only one or two concurrent ny page for only one or two concurrent the coffeens in turn, said Donald Storn. feld director of information systems at iejo, director of miorization systems at

have firm "I know that's unfair to the wonder but I don't want to pay for a copy for anyone who might use [the neckson]: the whole

thing is unfor "Stormfold said At the OURS conference in March, the committee plans to release its second product, a lexicon of common definitions for common software licensing terms such as concurrency, site license, enter-

prise license and user a committee enokosmomen said Lack of agreement between users and wandors on common definitions is "the single biggest [Beensing-related] issue Jacing the client/server software industry today. Sternfeld said. Without definitions customers "have to negotiate ev

andhing from coratch" with course the Morristown, N.J., forum, which comprises 120 user and provider company

The framework will bein guide ATAT. which has taken a sten toward combining network and telecommunications management.

Down to network level

Last month, the company demonstrated a fault-management application that will let customers manage their Definity G3 nrivate branch exchange on SNMP-based network management platforms, including Hewlett-Packard Co.'s OpenView, Cabletron Systems, Inc.'s Spectrum and NCR Corp,'s StarSentry. The application, wated to ship in the third quarter, uses a never agent to convert configuration and fault data from Definity into SNMP-based messages the network management systome understand

Also combining LAN and wide-area network management, Comdisco SysDre example some vendors delle For example, some vendors detine a note occurse as meaning the entire first, while for others "it is just one obvious wante for others "it is just one physical constitutions do what we have done which is to have vertices pricing models that we use as appropriate. Then every once in a while we come un with a brand non-citration"

Tvingun loose ends

Novell is preparing to release next month the final specifications for tying third-party software apolice ne and matering remises to its NetWare Licensing Service (Net-

Warm 1.83 Normali and the complex will sum. port conhicticated licensing prenarios such as the following: Fatureing a typical 50-user cor unt license to allow users to wait in a queue for the next avail able license or counting one high.

enionity years & Lot Keepen Dedicating a license to one narticular user thereby guaranteeing

Employing up an hazard ma. tering that would register for exampie, every five database search-

To order to provide such est Ities, however, NetWare LS needs to drum un some third-narty sunnort WordParled Corn Lettus Devalorment Corm and Subsect Inc.

Novell plans to ship NetWare 1.8 as a service to users in the second

ougetor

Ettenhath Homelts

ms. Inc. in Foster City. Calif., has added a Frame Relay Cloud module to its petwork performance analysis tool. The module offers a capability to represent high-enough multipleyed data transfers in both public and private networks. The \$4 000 module is available now

In the LAN realm, Cisco Systems, Inc. in Menlo Park Calif. demonstrated the next version of its router management software, which is shinging now The software keens track of the version running on routers and lets management configure remote rooters from a contral site via the network.

SITA, a value-added network suppli for the airline market, said that its customers can monitor the X25, X28 and SNA connections that they make with the SITA network using SITAVision, an OS/2based management application. The application resides on an IBM PS/2 at the customer premises and displays traffic and failure information.

ETHE SAS' SYSTEM FOR INFORMATION DELIVERY

VALUE OF THE SASS SYSTEM DN YOUR SIDE

Catting the right information to the right neonle can be a major challenne. Client/server. technology can belo

But your investment should get you more than a pricey electronic file caltinet. After all servers are computers and pretty powerful oner That's why the SAS System is a more complete client/server solution

With the world's leading information delivery system servers not only dole out data. They serve up compute resources as well. Summarize millions of records on the caruer and send only the (much smaller) results to the desidon. That can mean real equippe when your network strains to booor multiple requests for large data volumes. And turn data into useful information with the client/server software that meets your most challegging decision support/FIS geeds

CLIENT/SERVER SOFTWARE WITH THE DECIDED ADVANTAGE

Chin up a call today for your free quide Client/Server and Beyond, and learn how to bring out the best in your hardware, your software, and the people who use them.



2 2 4 2 2 1 2 1 F M L M M

Now when it roars. 50,000 desktops will listen.

INTRODUCING ENTERPRISE SYSTEMS MANAGEMENT FOR THE DESKTOR

"> The nower to control thousands of distributed desktons now sits right in the

ENTERDRICE DESKTOP MANAGER* Configuration Management Charge Management Distribution Management Security Management Asset Management Southern Management

For Windows, DOS, OS/2,

>> With NOVADICM's Enterprise Deskton Manager™(FDM). evetame administrators can now rapidly deploy

nalm of your hand.

client/server, legacy, or desktop applications across the enterprise...>> Using an objectoriented systems management platform, EDM continuously configures and inventories deskton contents. And it automatically distributes undates to millions of desktop objects when changes occur.

All from a central location-and with only a few clicks of the mouse, >> EDM makes client/ server systems management remarkably easy. Simply point and click on the applications to be deployed. Then drag and drop them on the icons representing the

users, workgroups, or departments that pood thom

> SE FOM takes it from there-transporting and installing the right contents

on selected deck-

tops across the enterprise. Then reconfiguring every deskton on a daily basis, to keep them synchronized with the most

current authorized vetsions. >> Nothing makes the management of client/server com-

puting any simpler.

Nevalisa

FOR MORE INFORMATION, CALL 800-626-NOVA (6682).

Mark Halner

Dyslextimates



late Designation and the Market of the Composite Duringer Systems high and comments with a control to makind the industry that transaction per second entimates one be at best whimsign! A confined to the occupant of the occupant of the occupant occupan

wided by HD its Univ line, the un now auto-of-record its surface black and record line the HP 5000. Anyone with a cheed of proprietary awareness realizes such a claim is nonsensical. Proprietary machines these days are nothing if not work. houses commanded with Univ house, and that containly an

plies to the HP 3000 vis-a-vis its "open" 9000 communion Ask any HP 3000 user why he remains on a proprietary system rather than migrate to a Unix platform, and one con eletent announ will be that the MD 2000 and its finely tuned

MPE/IX delivers more nunch than the 9000 HP itself won't tell you otherwise, although in the interest of in-house diplomacy don't expect anything ton voriferous from it hywer of a Univ disclaimer

What's wrong with this picture?

How as it noseible that a five processor noncicions HP 1000 rates at 1,005 trans /sec. while a five-processor Unix 9000 talling at 1.1502 That a six-processor 2000 access 1.200 comno red with the 0000's 1 2302

What's ming on here is that HP did not excedinate trans sec. testing across the 3000 and 9000 divisions "The fearns that do the work are two different teams."

combined Onter Recembled), stress research and develop ment manager for HP's computer systems organization. Larry Boyd, director of research and develonment at util ities vendor Bradmark Technologies. Inc. in Houston, point ed out that "the standard benchmark HP runs on the 3000 doesn't even execute on the 9000." That's because HP uses

not entroped ImperoSOL of support imagerous.

What's more, the 9000 division, caught up in a leapfrogging game of performance claims, is under more necessary than the 3000 group to yield test results that show a performance edge. And as Birket Poster, president of Chesterville Onjario-based developer M. B. Foster Associates Ltd., noted when it comes to trans /see estimates, "you can fix them

house you want Poster's point invokes the raison d'etre of ormaizations such as the Transaction Processing Performance Council (TPC) in San Jose, Calif. The TPC makes a living out of establishing stringent lest requirements and standardization by which competing vendors can compare their wares.

But some companies - and HP is notably one - are grow ingless anthusinstic about TPC testing because of the cost liness of those tests and the time they require (CW. Dec. 13.

1993]. HP's 3000 division has stopped using TPC testing. "You spend a lot of time and energy and resources to get the last 10% out of the benchmark "observed HP 2000 reneral manager Glenn Osaka, "Are you trying to optimize your

performance or your test results? All of this affirms the wisdom that trank /see estiall sorts should be taken with the proverbial grain of salt. What really helps an IS shop see straight is an evaluation of

a contom in the upper's real provincement

Halper is a Computer scorld West Coast senior correspondent.

Diary of a disaster recovery

the book Downer

Charles Shanobini diseases of inference Courses revocant, unrecor in morning foot systems at aruminum where manutectured appeared improvates interneweather formers at 4 a m on Monday ton 17 He month absorbed at his book in avaiding the East Coast's down frame by Infacia Southern California

Then at 430 his lack changed when an anothers to meletation if it on the Bish. earthquake, registering us on the Kon-

The \$205 million company's Van Nava data center less than feet miles from the queles enjacetes note nomeletale also down for two days. Six II S, sites depend on that data center for computing services so Peruchini and into awar His "May" anded 79 hours lates

10 a m : Peruchioi was the univiSciaff on to make it into the data center that morning The systems manager had about the board and an address programming supervisor could and drice. her one out of a smanhed meant Others could not be reached by phose, and powor was out throughout the area



computer with somputer with m Dytes of memory and a IRM north which

was taken off-line may seem - ---certridge drive for harive

• More than boo (RM_companible Bel corporate sites a Five reultipleved s6K bit/sec. data lines to remote sites in the

tene mak had fallen comments the HM party " he said The sales 1970 had been taken off-line on Day 1% when onese taken on-tine on Dec. 28 when opera-The sense to an instruction with the sense of the sense o furing the posmal diseasing IThe AS/400) walked a little bit but it didn't

Without person and light in the date center and with debrie scattered throughout Domeshini boston deing caroagnost, returning began using - softing up constations at an YI (Date come inc hot site in Anabeim Calif. more than 60 miles succe He had conmore than 60 mises away, in 2 n.m. After conference with plant

management in the Midward Demochine no. tified XL/Datacomp that he was declaring a disaster emergency. He located n harken tune of the operating system stored at an off-rite data stomen facility and an applications backup tune stared with Superior's somethy mutals in a nearly consensus building 3:30 n.m. While equiting delivery of

the operating system tane, he down up - Disaster recovery, non- 65

IBM offers single-point CICS manager By Thumas Hollman the car rental agency positions it

Remonding to evelopes ober 10st and bathin month commenced CICSPley System Manager FSA a systems management package designed to help large mainframe shops administer muttiple CICS its own Image/SQL distables to test the 3000. The 9000 does restions from a single point of conhand

Historically IRM CICS meets have been forced to administer each CICS metion independently "If customers are going to contione investing in IRM main-

frames, they're going to need manamment took that will keen them from investing in small armies of systems programmers," said Peter Burris, director of worldwide stylens and servers research at international Data Corp. is Framineham Mass

ould be successful The CKS systems management

package should be a boon for the Holyersity of Miami, which ruos multiple on-line transaction processing (OLTP)-intensive financial amplications under MVS There will definitely be some

interest on the MVS side of the bouse. ('il probably call fay IBM sales rep about this tomorrow said Richen Loner director of com-

Homeson one leasts IBM CICS man and the CICSPlex mackage is heat united for BIM's forthcoming parallel processing coalems

> CICS statistics Over 16,000 licenses (not including DICS DSD - that's another 10,000

hop.opp programmers

Used by 400+ of IRM's top 400 Used and supported in over go

Over a non-vendors offer more than 2,000 supporting tools and application packages.

"If you take the CICSPlex prod-

uct, you could run it today on existing mainframes. But I'm not sure you'd bother to do so unless you had an eight-engine ICPUI machine," said Thomas Loane, vice president of data processing at Alamo Rent-A-Car in Fort Landerdale, Pla. Loane, whom IBM briefed on the product, said his shop will probably install the software within the next six months as self for parallel progressing Still the CICS paylogs manner

ment and out which instrudes 1991 3 single-system image technology from Boole & Babbase, inc. is not being solely positioned for IBM's parallel processing systems IBM plans versions of CICSPho SM/PSA with an OSP etembiosistic

an introduce askers and interestive with NotView and the shillity to almeltaneously manage CICS 08/2 and CICS/VSE regions, according to Jim Gideon, an IBM senior proerom administrator of transaction presentation in Atlanta Gideon declined to specify when IRM would extend the OLTP sys-

iems management capabilities to OS? VSE and other platforms However, Carl Greiner, an analysi al Meta Group Inc in Westport Conn. anid IBM plans to extend beterogeneous OLTP systems management support to distribut ed platforms such as Hewless Packard Co's HPAIX Sun Micro. meters Inc's Sunfile and IUM's

ADC and AS/400 em/renments. CICSPIers SM/ESA, which is scheduled to ship next growth, will carry a base monthly hormsing charge of \$500 per processor and a monthly fee of \$110 for each CRS



Digital Solves The Three Hottest Issues In IT Today.



digital

Legent introduces DistribuLink-Unix

Product automatically installs software and data nackages across Univ or PC environments

the fact that an I managed the recontrol

.

Lumini Com, has introduced a product Legent Corp has introduced a product for distributing software and data from Choc servers in Chix and PC phanorins ing company and best that has while on surror accurate and timely transmis-Canada

Distributank d'arx follong by soon months Lotows by seven months Lesunfactool for MVS.resideat files: a product for OF The second in the second month ICW John 5, 19831 The Destailed ink fam the pentagonal mannoftware and data for dis-

telesters store the mak some in a central warebasener ... conds them about a second alter installs them outematically at specified times and verifies the in



lower to technology it suggested best were The Plant represents houseful an technol The Citiz receive in passed on the land tabal ink linis in accontratts Company

Wierocystems' WI my distribution need

not with a "maximum mont" to consolided in

Leren and Joh Ackerman Lerent's

manager of distribution products. The

newbort will work with any software or

Distribut sak Univ. man. on Montes

conceivably open up

some broader seman-

ties that the RDC could

said "You'd have to un-

pand the RPC's API, but

I think that's inesetable

John Mann, a sensor

analyst at The Yankey

Group, a Boston consul-

teney also sand bein to

client/server installa-

supporting

"way above". DCE in

Distribution is important The me tom important dispersion for Learnt " said Keyin (TNeil) vice prosdeat of research and consulting at Business Research Group in Newton, Music Tues moving to distributed committee often overlook software distribution. tion all the mundane stuff

"But they are beginning to wake up to Prekard Co. HP 9000 and IRM RS-8000

servers, support for Sun Microsystems in the effect because of the second toon's SCO Livey and OSP will be added more "O'Neill neithed. "So whole Leathers has really had at house a control to next worth. Toward machines, or exthesi next month. Target machines, in either ments of the story business serving on needs of the glass bouse - and is not asymmetrical or territ environments. but of france community it's improvement that Line or delegated the or large accounts, it is important too

Homostoown fallowers

Au Bon Pun a Boston-based Evenebbak ore observe to beta-tacting Dieterbal ink ery chain, is beta-testing Distributant-CHECO DEVADENT SOFTWARE Updates and 100 morning of Column 1 100 pc nt each of the Different late.

comment comment for San Microsoptome

As Box Box box had been mind a boxe. grown distribution product Howaver grown discribution product, nowever, and forbut to making to the first own of order couch nucha

We mught never find not unless we and calls from the end weets " Zooths and "H I wounded to become if a cute had the winter surrount I would have to due into the este and about the coffeens. New one bear Inhout the failured conhectly And two one on to the cite with homeon the common and see if the sale got the right version or

For MVS environments Legent is hundred supermeted links between Dartelbul only and its Endown family of application software management produced arts Asked about a similar offering in the Unix world Ackerman sold Lument would "bok" Destrobed ont-Univ

with ToursTools Concharate mandages that reason to the base of the base of that automate sometre development workshow. The tools were obtained inst year in the acquisition of reamone a ms, me one are need to give details.

MVS has the following major compomro allianchesson Manager alleres sufference *Watchouse Manager allows souware files to be identified grouned and stored ne "product" mount - a doubton moun an product groups — a armatop group

allows for serinting of installation. desectefication and backum procedures. It nless tracks asserted the tracks of afterfiles elected information about the *Fromer sau

#Eshodolog offerer enottended distribution to any terret at any date and time allowing suffrage and secontion of somanufactured contents to be automated at a Intertier

All in agreement the they the server software skin

absolute for the constability of dish or conon terms machines and verifies that the contents of a pseisare for distribution names with a checklist including check-ampropriented date time stemp checking and other coatrol measures Pricing for the some component non-more from \$1000 to \$45,000 domentions on the number of more. The turnet machine component is priced from \$30 to \$400 per node depending on the number

Stratus plans to integrate Isis with OSF's DCE many-to-many sort of theor." Hadson said

Strains Computer Inc. is integrating Univ. database messaging software it recently acquired with the Open Software Foundation's Distributed Computing Environ. ment (DCF). Analysis and the more could anable ween to build more complex and flexible DCE setums. Larry Sherman, director of marketing for Stratus Inia Distributed Toolkit coffmans, and blanding the two technologies should let ellents using DCF's remote new

cedure cull (RPC) mechanism address multiple servers simultaneously rather than just one machine at a time his software groups servery in elected-like settlemen so that databases can be spread among the machines

for reliability load-balancing and parallel execution. Sherman said

Is is came from Cornell University as public domain soft-

ware in the 1980s and has been formally marketed since 1991 by Isia Distributed Systems, Inc., an Ithaca, N.Y. company that Stratus bought in December Isia consists of a set of proprietary messaging prospeols issued on top of TCP/IP an application programming interface (API), a multitasking facility, a dynamic naming service and performance-monitoring tools.

Dave Hodsog, an analyst at Standish Group International. Inc., a consulting firm in South Yarmouth, Mass. compared that falls to make flowthis than the DCC DDC The RPC limits elients to sending a single request to a server tions. Mann said be seen little value in combining the two technolomes because of skeptroum about DCE amodalmost The World Rank's planning and budgeting department in Washington has used list since 1968 to

enread three homogroups relational databases across a petwork of 10 servers and Unix workstations. Tors Allen, senior budget systems analyst at the hank, said hisdepartment has no firm plans to implement DCE. But

and then waiting for a response, while is n is more of a he said other narts of the bank are committed to DCE and would be able to get into Isis, too," if Stratus does I asserting the DCF RPC over the last technology could the internation

lois "docun't take a whole lot of expertise to use" other than know ing how to write multithreaded applications Allen said. The product

enness to be 'man shead of the curve" in distributed computing but it has been locking on many few months or so requiring all systems to be restarted be noted "Immediate" use it for a mussion-critical annihontion " Allen

said Stratue is "nt the point where we believe it's possible" to do the internation with DCF

Sherman sald He add ed that late this year "is probably a reasonable terred" for shipping a combined product

Sherman acknowledged that Stratus wants to pursue the project in part to avoid having his viewed strictly as a competitor to the better known DCF

OUR OPEN TCP/IP STANDARDS PUT PC INTERNETWORKING IN A COMPLETELY NEW LIGHT.

FOUNDED BY THE ORIGINAL DEVELOPERS OF TCP/IP FOR THE PC, FTP SOFTWARE IS LEADING OPEN METHORISMS INTO THE 21ST CENTURY

In propnetary networks, there always seem to be stoplights wherever you want to improve

PC connectivity

That's exactly why more companies around the globe are adopting FTP Software's

lucts And why

family of networking products. And why we've become the world's largest independent

vendor of TCP/IP software, with over 400 professionals, a worldwide network of resellers, and installations in over 50 countries. Giving enterprise-wide networks

the green light is our only business

Ever since FTP's founders developed the original TCP/IP for the PC, we've concentrated on enhancing it Today, we're bringing you the latest oner standards for DOS. Windows, and OS/2, with an expanding line of

flexible solutions that make heterogeneous

internetworking a reality. Plus, we've built the largest
...
TCP/IP expert support services in the industry.

PC/TCP" > DOS/Windows
PC/TCP > OS/2
[ANWatch" Network Analyzers
PC/TCP Development Nile

If your company is facing PC connectivity issues that proprietary systems cannot solve, talk to us. Chances are we already have the solutions that can give your ideas the green light. 1-800-282-4FTP, ext. 700

ftD Software

proprietory notwork potting the krakes on productivity? Go with FTP Softwere.

See us at 8 Networks Expo Boston, MA February 15-17 Booth #706

Disaster recovery

CONTINUED PROMINACE AS

don his dock on a normalist afternheak his COO - - The bet elle ment succession start leading the operating system and and totaling out operating system and But by 8 n.m. Persebial discovered that the Sum backup tenes of the applica the man backup tapes of the appara-

without on time FMC Comp. topo drive without all carrie gard corp. tape unitcenter The Los Angeles office of EWC to censer. The Los Angeres onice of E.M. to cated a "Voyager" unit at neighboring Det 1800, the in Orange, Cant. Don roranger, ber raco's to un'ecte, gamely drive to Personnia After the description nion week was done. Del Theo and its FMC ston work was done, bet raco got 10/20 n.m.: Demobied started loading his data contacts according to the control of

aid and distribution applications -- all 99 of them. "I wast't sure which were the critical ones " he said Superior mass Critical ones, he said, Superior uses Province Associates, Inc. 6 push ness Planning and Control System packabini and Voith Could not a bad from out from XI/Detectors Deller had eite dised on votas chips and penperoni Pizre was the next day's lanch

Was the next day's runen. were an except for the 19 2K hit/see ma-

dome that VI (Datacown cont to Super ecine that Algoritations state to buy and Kanene But first the network interfaces between DC I AN assects sites and laces between PC-Livin remove sites and Foregraphic uses more not to current 56K hit/see multidron lines

2:20 p.m.: "We were finally in most home "Demobial said Democ had been restored and the AS/400 there had been restored, and the AS/400 there had been tepositioned. It was in ought back or line talked on the phone to IBM support staffers. "He was able to get it nowered an and ers. He was asset to get it powered up and available, Peruchini said, not it was atwere felosod) for the day

Dry this time ... two deers after the make had hit formation and date center was back up and running en with for them to return. Despite all the preparations Superior never actually processed anything at the hot site.

6 a.m. Wednesday Jan. 19 The Van New data center's AS/400 expresseded by follow pollingtiles and debate man non cossing data for Van Nuys and one remote plant. Four other Midwestern plants remined their links to the AS/400 at 10:30 s.m. after a long-distance line autom Provehini sold

Our high-volume printing solutions are packed with these 2000 exciting features.





The HP Output Shocker left, was promningle document



mor on eler, paper feeder, samplies, and—are accord at—areas and cream of search

about stacks of paper. Except that Hewlett-Packard's namerhandling solutions for the printers let you spend a lot less time dealing with them. And when it comes right down to it. why once time with a 17-page per minute printer if you have to spend more time putting paper in and taking documents out?

There's nothing terribly exciting The 1.500-sheet HP Paper Feeder and HP Louge lot Printer Cubinut alon notwork onto disable the input capacity plus a place to HP LaserJet III St, 4Si and 4Si MX keep paper - where it won't get wrinkled or dor-eared.

For unattended printing, use the HP Purser Fooder with the 2 000. sheet HP Output Stacker* It's the ideal solution for printing big inhe ofter hours

If increasing productivity sounds more exciting than refilling paper travs, talk to your HP representative or reseller. Or call 1-800-752-0900 ext. 7889 for more information

HEWLETT'

Southern is request to IEP authorized whiter pressured. C Montest Particular pressure

The reality

-Jean S. Born

RECRUITING TALENT FOR NEW ENGLANDS

Advertise in the February 21st Eastern Edition who Computerworld's regional Careers feature examines
"IS Careers in New England."
Ad Close: February 17.

800 343-6474, x201



Restart without starting over



Application or system failure? Restart from vour latest synchronization point - automatically. Use APPLICATION RESTART CONTROL (AR/CTL") to eliminate re-running your entire application or restarting your restarts.

Starting from the correct sync point helps you improve data integrity, meet tight batch window constraints and save resources.

Complete restart solution

AR/CTT provides automatic application restarts for DB2°. IMS and sequential files. Often without application changes.

Which of AR/CTL's features can most benefit you? Coordinating DB2 and/or IMS application restarts? Automating sync point selection? Providing operators with automatic restart capabilities? Re-attaching an application after environmental recovery? Whatever you need, AR/CTL delivers.

Don't let a restart turn you unside down. To start a free trial of APPLICATION





How Did World Airways Re-route Their PC Network To TCP/IP?

The answer PC-NFS' from SunSelect, the worlds' most popular software for connecting PCs on TCPIP newbook. Mether's you are MS-DOS' or Microsoft' Windows, you can connect to any UNIX' IBM' or VMS'—monotoment for a true open system solution. And because SunSelect is a Sun Microspatems, line basiness, you know you've getting the best with PC-NFS.

An zir traffic controller's worst nightmare.

World Airways' old mainframe "hub" was struggling to handle the company's large volume of PC user traffic: an ad hoc query typically took over there days. Unhappy users were stack in a holding pattern, and productions was consorted.

World Airways needed to replace the old mainframe and upgrade to a UNIX them/serves volution that could link every computer directly to the servers. And that solution metuded PC-NFS software. It connected all 150 PCs and 26 remote users to a new TCP/IP nerseet.



p and flying

Technism and World
Armony ang, because it was fast
and easy to most in gong, because
is unliked county buthour, and gene.
It will be the state of the county
and the county buthour, and gene.
It was a state of the county
and PC, and productive by providing.
PC delating accounts of wide univery of the
and PC, and productive by providing.
PC delating accounts and air tramport applications—for example, PC, NTS is temployers
use the UNIX crewish as a gareous
to be INIX crewish as a gareous

like Leos" and Neois." And because it's completely transparent, users can't tell whether they're working locally or on the server.

PC-NFS opens a world of opportunities to your PC users, too. Through seamless TCP/IP connectivity, PC-NFS users can access enterprise resources. — Bite applications, network primers, e-mail and more — without sacrificing their familiar Microsoft Windows or DOS interface. PC-NFS offers.

 Full integration with DOS, Microsoft Windows, NFS and any TCP/IP network;
 Powerful, full-featured applications like FTP and

Teiner, plus on-line help, Broad support for Windows Sockets and NetBIOS replications. Microsoft Windows for Workerouse."

SelectMAIL, RIJMBA* for PC-NFS and more FREE facts on connecting PCs to TCP/IP.

Call 1-800-60-SELECT, ext. 0301
today to get our FREE booklet,
"10 Things You Must Know Bejow
Connecting PCs to a TCP/IP
Nausol." It describes important
considerations for successful
right-stone to a TCP/IP

network So call now and

start re-routing your network to TCP/IP with PC-NFS.



Call 1-800-60-SELECT for a FREE copy of "10 Things You Must Know Before Connecting PCs to a TCP/IP Network"



...........



No Postage Necessary If Mailed In The United States

BUSINESS REPLY MAIL First Class Mail Permit No. 665 Mountain View, CA Propage will be poil by addresses

Blenheim NDN, Inc. 444 Castro Street, Suite 1101 Mountoin View, CA 94041-9818

Large Systems

Amdahl Corn has announced the Am debt LovTree Release 2.0 hierarchical file and storage management colleges designed for large-scale networked

computing environments According to the Sunnyvale Calif. company Amdahl UniTree addresses the word to improve the cafety of date on dealton systems and in client/servornet. monto while reducing the costs of storing and managing the data

The product provides automated data migration and archiving functions and offers the canacity to handle more than

100 temberes of date

Base prices start at \$6.875 - Amdahi

4400) 740 0000

Dynamic Information Systems Corp. has ennounced its Omnidex for Data Warehousing an indexing tool

Arcording to the Boulder Colo., comnamy the product creates key more indeves for production data stored in commonly used databases

Upon can build decision-support and executive information systems that can drill through millions of records in seconds to search for information of summarize data and download it to PC programs for an abytic and graphing Licenses range from \$9,000 to \$57 ann

► Denamic Information Systems (303) 444-4000

HMC Software Inc has announced Fast Reory Facility (FRF), a product that speeds IMS database reorganizations and increase data availability by concurrently running BMC Software's highspeed reorganization utilities.

According to the Houston company. PRF further increases data availability by providing read access to the data during the load, unload and secondary index huild instead of taking the database offline, as is required by traditional reorsa-

The product checks reorganization ioh control language (JCL) for errors and

I.S. EDUCATORS!

Plan to Attend:

June 12-15, 1994 on Conference Center & Resi

1-800-488-9204

monime one ICI set for the monmains Prices start at \$5,000 for a numerous

entse. ► RMC Software

(713) 918-8800

sindo phase uninterruptible nomes supnly system. According to the High Bridge N.J.

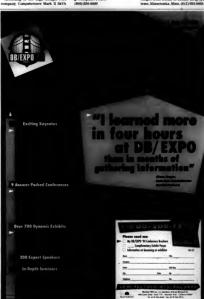
Computer Power Inc. has introduced a rower

delivers line-interactive technology, prodistricte machiner active sections only, prong continuous, no ocean po constant investor constation

Distance Include coherent metasian and control current harmonic correction utility power line conditioning high efficiency and a small featurist Power ratings range from 900VA to

Orient start at \$1 900 Commuter Proper GOST CAN BOOK

Haln Systems Inc. has atmoustered neup/systems, inc. has announced sisted to manage report output from an IBM AS(400. The product bondler all renext along them is an independ number and prints the packet at any printer on the user's ASMOD network it receided tools to open reports into segments Cost: ranges from \$4.125 to \$0.625. Helo/Sys.



THE NEWEST WYSE TERMINAL THEY EVEN ELIMIN

ho needs to be bombarded by unhappy users,
disgruntled accountants and irritated engineers?
Particularly when you can avoid such stress simply by
having one of the reliable new Wise terminal moducts.

displayed via high-resolution character cells. And the new built-in rest timer can remind users to do what its name suggests. So many features, yet you still get the low price you'd expect from Wyse.



WY-SS ASCINANSIPE Form UNIX Console personalities. Up to 4885: or Eather connected with the closest WY-W-Low contents. TS models or

PRESENTING THE WYSE WY-55. THE LATEST IN A LONG LINE OF CLASSICS

Speed made the WY-50 a classic. Now, following in that tradition, comes the WY-55. It's fast and completely plug-and-play compatible with the WY-50. Making it the logical successor to one of the world's most popular entry-level terminals.

A LIST OF FEATURES THAT'LL MAKE YOUR HEAD SPIN, At A Price That Won't—\$349.*

The WY-55's incredible mix of 15 personalities (including the popular WY-50, WY-60 native mode and DEC VT220 emulations) can handle traditional minicomputer and mainframe environments as well as multi-user PCs. The crisp, clear text is

NEW WYSENET TERMINAL SERVER.

This promotional offer, like the WYSEnet terminal server itself, is hassle-free and simple. Since four and eight are both divisible by two, we've decided to halve the price on any four- or eight-port WYSEnet TCIPIP or WYSEnet TCIPIP or WYSEnet TCIPIP or WYSEnet TCIPIP or WYSENET OF WYS



BYSEast Toroinal Server 99W125'H167'D 4or8per

That makes it pretty easy to discover how painless connecting terminals, printers, modems and PCs to an Ethernet network can be with WYSEnet. Set-up takes fewer steps and less time. And WYSEnet features one of the most extensive on-line tutorials of any terminal server.

Whether you're looking for terminals or terminal

PRODUCTS ARE SO AMAZING ATE PHONE STATIC.



servers, the WY-55 and WYSE net are Wyse decisions. static. For more information on the WY-55 or to And of course your life will be a lot more pleasant when you get rid of that pesky phone

order your half- price WYSEnet terminal server call 1-800-GET WYSE.

Why is Compuware the company so many turn to for programming productivity tools?



Fault Diagnosi

80%* choose Abend-AID*



File & Data Management

76%* choose File-AID®



Automated Testing Tool Purchases

55%* choose
PLAYBACK**
over all other products



Interactive Debugging

52%* choose. XPEDITER® When development projects pile up,

For many IS organizations, it is both impractical and impossible to increase staff to accommodate workload increases in development and maintenance. You're caught in a squeeze. The only way out is to improve productivity—fast. At Compuware, we specialize in maximizing the productivity of your most valuable resource—your programming staff. That's why over 5700 companies have turned to Companies have turned to Companies.

Quality-built applications—first time, every time. The time crunch in testing leaves programmers choosing between getting things done and getting things done and getting things done right. The trick is to do both. That's why, for building quality applications, more companies put their trust in Compuware testing, debugging, and maintenance trole.

Adaptability to an ever-changing IS industry.
As platforms and environments evolve, your
programmers expect their support tools to adapt,
whether it's DB2. IMS. CICS. or today's client/

server applications. Compuware tools do. In 20 years, our commitment to programming productivity has't wavered, regardless of what direction the industry has followed.

It's what you'd expect from the programming productivity experts.



For a free brochure telling you why IS professionals choose Computate, call 1-800-535-8707 or 313 -737-7300

KnowledgeWare rides road to recovery

Client/corver development tools win support

By Metinda Carol Bellon

a Council VacculationWater Inc. customers raid these are not surprised to see the company seemingly back on the road to helty profits. Users and industry anaor the road of nerty profits, users and moustry anacation of its amount line

After a series of difficult quarters, Knowledge-Ware tast month pested a profit for the third consecutive exerter due in next to the addition of a renository and elianticomes and no or disposing tools to its busine converses and re-engancering money to the macky.

are. They are not the entitled of the foliant former suffiware development " said Huro Quarkenbush senior eion provident at Charles Schwah & Co. an investment nominant hazard in Can Connaisso. He added that his grown intends to maintain its commitment to Knowlwise Where although it will also so saider took from oth-

There are however some burdles for the common to lear. Knowledge Ware has lost some business due to the high price of its high-end computer-sided software coetposeing (CASS) tools and its late entry into the client/

For example, one Canadian retail firm moved off Knowledge Ware's Application Development Workbench (ATW) during the next year and is not looking at edgeWare's new client/server tools. "We moved off of ADW because of birth rost," said Stuart Williams. on analyst at the miniter "We have I checked out their client/server tools and are using Bachman References Systems, Inc. I now but only temporarily because we still and to much to took that are formal channer We don't need their exten-

Powersoft Corp. and Gupta Corp. now hold the lion's share of the dient income took market

Donald A. DePalma an analysi at Descripe Recounty Inc. in Combridge Mass saidthat while Knowl edentifican has done a most job expanding its forms to the desktop and endennionment markets its elienti company area in atill planting actab on

with Cunta and Powersoft 11/2-11----

ing the woder mornie more income according to Don Addington KnowledgeWare's president and chief enerating officer Fully 30% of don Waren's responses to belief of

ucts that have shipped during the past 15 months, ac ing to Knowledge Ware officials Knowledge Ware also acquired internal stors in Europe, Australia and New Zealand, which has

below brighten the financial picture. Addington said KnowlederWare users snoke positively about the any's non-warms — for instance a more feature rich version of Knowledge-Wisze's Object/View clienti-

corner tools (acquired originally from Mateurs Corn.) atil ship this mooth ICW Isn 211 Store Vicinanza, director of technology planning at

Plantage in Date Systems Comp. said the country of the co well. He said be especially likes its Personal SQL reporting tool and featurns built for multineous autore tures nost for musuprogrammer

teams wond to "Demonal SOL is one of the fee Personal SQL is one of the leathis tool onto out his form had to hand-code legacy reports. "This will be more automated." he said. Furthen Viningary and at matimo Ob inctView can dynamically change the contents of the field brand on oth or elements of the report. "Ne if you ment to desay in information from dif formal tables that do it's touton by no side there you can nut them in

Amorious Airlines sont sucted nowledge-Ware to create a version of Demonal SOL because there was anthiar "off the shell" that would let

peria basi sess rules with a reporting tool "I like the direction they're headed in terms of Ob icetView ADW and the ability to design client/server and Issumble near interface) front ends for letters and tems, and they've got a good game plan in place with Suban Cancer distriction of AMP Com-

"You see Knowledge-Ware transforming itself." astid Judith Hurwitz, president of Hurwitz Consulting in Watertown. Mass. The wender used to be a "traditional majefrome CASE" firm she said but now is bringing out "specessful" re-engineering and client/server tool

Asymetrix tunes in to users

By Stuart J. Johnston

Asymetrix Corp. is shipping infoModeler, a design package for Windows that aims to beip developers create relational databases that more olosely match end users'needs

The package uses facts and examples described in English to generate code for a aumber of popular PC and minicou or database management systems. The deskioo DBMS edition generales code for Microsoft Corp.'s PoxPro and Access and Borland International, Inc.'s Paradow for Windows Support for dRose and other popular DBMSs is also in the works, company officials said

Developers who have tried infoModelor said it does belo simplify the databasegeneration process. 'TotaModelor is fundamentally for 'scient, sort and report' types of applications, especially when you're going into a situation where the project is entirely unfocused," said Elliott Green, owner of Base/Case, a small unitancy in Pale Alto, Calif.

"It is extremely efficient in terms of

database design," said Green, who is onthy working on a large document rement system for a major corn rate client. Another over said it has beloed him im

prosen the condity of his and needed "I don't think it's taking me any less time, but I feet that my product will have date structures that will be as good as they add ordinarily be in a respond or third release," said Eric Rasmussen, presi dent of Generation Systems, Inc. in Issuaugh Wesh Generation Systems is building an application for vendors of industrial and commercial inhrigants

Bellevue, Wash-based Asymetrix soquired lafeModeler in unfinished form lest year when it boneful out Server'il a Scattle-based start-up. With info-Modeler, a developer can design a datahave with the user, the package thea enstically generates code that works on a particular DBMS to create the

The package provides a set of tools

that lets the developer deals using "object role modeling" - a method that does not use the arrang to of DBMS devices produces Toutead of primary and foreign keys

and database school w we're oresem ess rules," said Jim

O'Farrell, Asymetrix director of marketing for database prodthen taken there and rates the data see schema with the

pecessary keys, and H'o all normalized InfoModelar r cluding a Pact Com nier with which the

input pertinent details about the uner's database needs: and a Part Disgrammor a diagramming tool that beins the develmes example an information model of the database

The features have been well-received "It's given me both a graphical as well as ess language for what I do, and I you run the Fact Compiler in reverse. It actually spills on! English sext. "Ran sen said. "It's going to help get rid of the white knuckle' when you first turn" the poer's finished application of Underlying the system is a repository. or internal database of the data objects

contained in the decim A Detabase Do sign Validator belos "normalize" the data

base design - for example, it points up trouble spots in the design The destioner can

also generate a varicty of reports and a fact dictionary to doc certification. doom mentation and main-

\$795 for an edition that supports several deskion DBMSs and \$1.495 for an edition that works with Oracle Corn 's Oracle 7 or Microsoft and Sybase, Inc.'s SQL Serv or DRMSs. A driver that less the deakton edition reporate code for either Oracle 7 or SQL Server costs \$985; one that lets ei-

ther Oracle 7 or SQL Server generate code for the desktop DBMSs costs \$485.







of around 1,500 different flung countries right down to we all find so

PCs. workstations and midrange computers, linked to

It's one of the biggest events in the world. And the athletes are only a small fraction of the people involved.

There are coaches, trainers, journalists, maintenance people, security people, you name it-50,000 in all, with a vast array of different information needs.

Obviously, it's critical that everything comes off perfectly during the Olympic Games. Because at this one-of-a-kind, two-week occasion, there are no second chances to get it right.

Which is why the '94 Winter Games have mainframes "serving" the rest of their computer network "clients." It's the only way to handle the almost unimaginable information needs of this monumental event. Like, for example, making sure every local area network and PC

at Lillehammer-2.995 PCs, to be exact-has instant access to statistics, bios, results, timings, not to mention information concerning ticketing, maintenance, food, lodeing and a host of other things

You might say, running the Olympic Games is simila to running a company. Which is why, like so many companies, they depend on mainframes for accessing managing, distributing and protecting mission-critical information. Because, quite

simply, nothing else can do the job nearly as well. To receive more information on mainframes, call

1 800 IBM-6676, ext. 656.

The IBM System/390

Olympicsecurity gets boost from neural network

D. CW. Probes When the Winter Olympics open later this month in i illehantmer. Narway, the schedulmonor in chenaminer, norway, the schedul-ing of police security will be handled in part



the winter comes made more difficult because of the complex Nonrection employment bears Bules dietate that assistaments must be based on social, educational and experience criteria, as well as on

strict mare and bour normalisticas

How It was don The application for the Norwesian Police was devoluted on a Sun Microsystems Inc. SunOS Univ platform and will be posted to Missourit Corp.'s Windows NT. The application will be acreseard via The ASK Group, Inc.'s ingres fourthreportation language database

After the stames the Norwesters Police intend to deploy the application in every law enforce ment sile in the country on learning or integrating the tools

Nevnest Object to a knowledge-based application development tool. Smart Elements has the canabilities of Nexpert Object as well as graphical user interface design and scripting SPARC workstations

Sun counts on Unix tools

Latest development suite makes company a key player in Unix market

Dr Melinda Carol Staller

SunPro a unit of Son Microsystems Inc. is healther on an increasing send for high new ared Univ tools that are more easily accessible and offer better pricing as an intermeted moun Toward that and Confer last month missand a sinite of development tools for the lines murket The suite includes unberseed services of Our Pro's SPARC works family — with runtime exror-checking and memory leak detection ... and SPARCycerky/moset, a new multithreaded newhood that commany officials said allows now product that company ornerals said allows pro-

One of the his hors

The tools are a "big leap forward" and make SunPro a "formidable player in the I'nix marbut " according to Stone McClure, manager of object technologies at International Date Corn. a consulting firm based in Premingham

"One of the beauties of what they have done is that you don't even have to leave the debug. ma to fix each, which should out down on the cycle time swite a hit "McClure said He added that the suite will likely around to a new breed of Unix developer — one who prefers to have exerciblest intermeted so that he can for eus his energies on the application rather than

Howards McClero said traditional Univ. grammers who prefer to mix and match the hast of class tools the machine still exist as a key SPARCaneka 3.0 a tool set for C. Ca.a. Rive

on's tool out The SPART works suite includes the SPARCworks family of look; impact; SPARCompiler for C.

epending on a choicel; and SPARCwerks Teaments which ables developers to multiple sites and suite for Cis priced at So can fa mile discount compared with purchasing the

priced at \$2,005 to 24 % discount), and the referent ar \$2 and fame?

work with a fully integrated set of

nonrecedural AGL a windowed user in-

terface reporting and data management

facilities, procedural language, a deve

oper's workbench and a syntax-free reporting front end.

Prices range from \$2 500 for a single.

tran and Pascal development offers users the

* A Visual Data Inspector to let programmers manhinally visualize complex data etynotunes On the fly changes to source code that climi-

nate the need to relief a policetions and restart the debugger s The ability to browse uncompiled code in addition to compiled code.

Sun officials also introduced SPARCompiler Can a mondaneerd object code montales with native C++ support and compilation smeds up to 2000s faster than previous yes

Users with high-performance applications

normal improved with the new suite. The tools "have graphical analysis for each CPU so that you can see CPU ntilitration and how the tood is being belenged comes processes. don't know of any other tool that does that on a parellel evelope" said Dan Desdeon accleta professor of computer science and biolechni cel and bloobswicel economic the University of

Davison said when users bring tegacy code court to negative proposessors the new SunDay compiler provides information shout what needs to be changed to make the transition "Other compilers tell you that you can't par

allelize a loop or routine, but they don't tell you who The RunPro compiler tells you that the loon is too short or that there's a data denondenov on a next leader variable." Devices said "It's a low and means you don't have to hire o and programmer to get the job done

come on down to Dallas duced Nomad 3.4 for Hewlett-Packard Co.'s 9000 Series business servers and for the year's workstations punning HDITY According to the Norwalk Conn. combiggest roundup nany. Nomad is used for developing soulable applications in a client/server fourth-generation language (4GL) inforsoftware users mation management tools that include a

StuGi 19 will fill your ten-gation hats with the Tenest generopromiss in one SAS System. This year alloads include applications development, database management facilities, information systems, information vasualization, system performance and tuning, and

more. Along with the usual programs and software demonstrations, several excitno SUGI firsts are also clenned We promise to send you home with the biggest and best ideas you've had yet?

SAS institute ing. SAS Campus Die Con NC 27519 Stone 019, 677, 2000

Y'all

of SAS

at SUGI 19!

SAS Libers Group International Ninetrenth Annual Conference Arri 10.12 100/ Lones Anatole Hotel

Date Truck Pater Kretzman, Conference Char user workstation to \$10,500 to \$150,000 Must Suffugere Intermetional (2021845-5000

for a multiuser system.

NeuroDynamX, Inc. has introduced DynaMind Developer Pro, a suite of neural network software tools for PC. Macintook and Unix workstation platforms According to the Boulder, Colo., company, the DynaMind Developer Pro envireament includes a comprehensive set of

linkable: C routines, a sophisticated scripting language for neural net training and testing, neural network chip em ulation and DynaMind simulation soft-

NeuroLink Version 4.0. a library of more than 100 C routines for integrating neural networks into bost applications. is the central component of the package NeuroScript, a high-level scripting lap-

guage, is also included. The PC and Marintosh versions cost \$1,795 each. The workstation version is available for \$3,995.

Newrollsmann I (20214/0.2520

Product short

FFE Software, Inc. has announced FirstSQLC2.2 a complete relational database management system for C deval opers under DOS and Windows. The product provides an embedded SQL pre compiler for static and dynamic SQL and a C call-level application programming interface. Features include full-connec tivity capabilities via Microsoft Corp.'s Open Database Connectivity standard and outer join. Cost: \$395 for a single user. \$795 for patwork users. FFE Software, El Cerrito, Calif. (510) 232-6800.



The thorny relationship between IS and top management may finelly be blossoming into fruitful harmony:



Consulting firms are beginning to guarantee customer satisfaction and even offer refunds, But not everyone thinks it's such a great idea.

Put your money where mouth is

By Alan R. Earls

ith 1,500 users and some 44
LANs, Hillsborough County,
Fig., Calef Information Officer
Ted Bahn knows the potential
breadaches associated with using
outside service providers. For Bahn, the
prospect of information systems consultants guaranteeing customer, satisfaction,
much like hotel chains and muffler shops,
can't come soon enough.

"Tve heard of people offering guarantees," he explains, "but unfortunately it hasn't happened here yet. I certainly think it's a very refreshing idea."

The idea just may be catching on. A number of IS consulting firms offer some kind of guarantee for their services in much the same way as a local appliance store.

It's part of a larger but controversial trend within the professional services industry to guarantee work.

David Lord, editor of "Consultant News," a newsletter based in Fitzwilliam, N.H., notes that increased competition is forcing more firms to take a hard look at guarantees as a way to attract and keep customers.

One of the biggest proponents of profes-Consulting, page 78

The TQM Group's Christopher W. L. Hart: With a guarantee, everyone becomes aware of the absolut importance of customer satisfaction'

Consulting

COMPANIED PROMINED TO

sional service marantees is Chris tophen W. I. Hast president of The TOM Group, a Roston firm that emociatives in total quality man--pecmus Rosays afull marantee is the ni-

timate way to build a successful times way to bage a success Money back

The real value of offering a man antee is not simply as a marketing tool but on a manage of famous action organization and driving perfor-

manon Heat care "People tend to think of navnuts. from a marrantee ... the rick factor - as expenses, when in fact they are year important innertments in developing your commission's mind and Milk a manager of the one becomes aware of the absolute importance of customer satisfac-

tion," Hart says. "We all know of firms we love to do httsiness with because they renot to problems in years that leave customers dazzled and grateful for the relationship," he aside Moving toward offering a complete satisfaction guarantee is e way of providing your employees with enormous insights about what they do and the real needs of Another true believer is Robert

Construction annual depth for any des tion at First (main Management Come in Sun Mater Calif. a from that enerializes in direct converalon of documents into missofishe and microfilm for banks and other

Stomers. infaction has not structured to an elecwhich emitteness are entitled to feet back! up to 199% of the ffee for lose work if they find any anpeet of it ansatisfactory" he explains. "If you don't like the color of my chirt, you can get satisfac-

The murantee rolling can be invoked simply by filling out a onename form Contomors need only small and the area of dissettisfies tion and decide for themselves the person tests to be softended. And dosolts the terretation such a relies might pose to those who would abose It. Gregory says, customers

have mecrally been fair What it halls down to is that we THE R COLFOON D IN COST WE pay a reward for the capture, ar ho nelde

tions on a theme Jim Sariano is chairman of CSC Consulting Orong on IS consult. ing firm in Waltham, Mass, He says. his firm's guarantee policy has been a his messes most of the



Holdback option

Client withholds up to 20% of payments until satisfied with completed project.

Payment in-kind

Client pays in full or part with company stock Does not guarantee stock price.

Full guarantee

Guarantees satisfactory performance

Unconditional satisfaction

Refunds up to 100% if the customer is unhappy with any

aspect of the work.

guarantee

W.I. Hart say con

consulting must be

hased on trust —

something

that transcends anv

guarantee

Guarantees... it's a very

time belging to woo clients and build the firm's regulation CSC Consulting provides some ellents with a holdback ontion under which they can withhold up to 20th of navments until the project in completed to their entiring

Bob Gilbort a spokesmen for CSC Index Inc. a subsidiary of CSC Consulting, notes that anoth er unit of the commany has garneed considerable buriness by perfect considerable business by sis of automated billing systems. Payment consists solely of any sevines the effort produces, unlit

50-50 between CSC Consulting and theelient Blok-free Sometimes, even though we believe we can prove what the work

will save. MIS eliepts may not have the financial knowledge to accept what we are saving," Gilbert notes. "These kinds of arrangements have notnelly been were incontinue for us and attractive for eli-

ents because there is no risk " Other variations on the mas tee theme are also appearing. One of the more venerable may be the "payment in-kind" ontion pior ed by management consulting house Bain & Co in Boston

Barry J. Harrington, a convice president, explains that Bain has offered the option of full nr par tial payment in client company stock since the early 1990s. No guarantee of stock performance is offered, but both client and consultent chose on interest in secult.

"For us, the best measure of nur value is still not the stock but whether clients come back for more," he said. However, Harring ton seve. "from our point of view we are glad to take payment in kind because it is a statement of self-confidence, and for some elients it makes financial sense

Even guarantee propopents see the risks. In one case Sevien says, payment was beld up for months by a customer be restards as simply capricious and finicky "I think that particular client ally abound the relationship to extract added functionality . they were interpreting the specifiand were interpreting the special

any other client has in the past." Not all professional service firms are willing to jump on this bandwaron. Many firms say mar antees threaten the kind of object thrity ponded to deliver the best ad

vice and the best solutions Stuart Flack a spokesman for management consultant McKinser & Co. elaborates on the traditional view; "We don't take on elient work unless we believe we can have substantial impact. We ramly. If ever make guarantees because we believe consulting must be based on trust - something

that transcends any guarantee." Nolan, Norton & Co., a Boston based management consulting firm takes a similar view John Halloran, managing principal, explains that customer satisfaction at his firm has been driven by being very explicit about delivera-bies and schedules and then adbering to those commitments.

But as for actual guarant Halloran explains, "our relation ships with our clients are, by their nature, intermittent. If we don't produce results, we don't set our It isn't just the consultants who

say that - some ClOs agree. Although willing to acknowledge that risk avoidance is the name of the game, Thomas S. Loane, a vice president at Alamo Rent A Car. Inc., says he is inclined to stick with a traditional style of business. "In software consulting there is usually a contract docu ment that spells out expectations in some detail. But the best guar antee is based on the fact that peo ple don't want to throw away a mutually beneficial relationship."

Earlis is of free-lance writer in Artimeter.



NOT ALL TERMINALS ARE CREATED EQUAL

Introducing the Dorio plug and play terminal built by Digital Equipment Corporation. Finally, the scales are tipped in your favor in the plug and play terminal market.

Now there's the Dorio" terminal. A new class of terminal with unparalleled features and the strength of Digital's world-class engineering, manufacturing, service and support. Dorio delivers the features, reliability, and quality that you've been asking for in olug and play terminals.

Call 1-800-BY-DORIO today! Strike a balance between price and performance.

Get all the details on the new Dorio terminal, including our Hassle-Free-No-Questions-Asked: 30-Day-Money-Back-Guarantee.

DORIO, BRINGING VALUE TO THE PLUG AND PLAY MARKET.



Available from these distributure. Ariva Detronics, Inc., MT Systems Dirinin (800) 955-962.

Almost MT Systems (800) 405-1410, Award Computer (800) 625-7999, Impact Marketing (800) 345-110, Inland Associates (900) 886-7800, Pionerel Standard Dictronics (800) 323-866 still-02.

Pioner Technologies (800) 227-1802, Wyle Laboratories (800) 323-865.

Or call 1-900 8TP (D/801) C 1890-293-27-6746 for the distribution exacest you.



A read on the wild side

The reading liet for SIM's information suc. tems executive training program goes for heuond technical matters and conventional management thinking.

ooking for a good book? If you want to get ahead in the IS world you will find quite a few helpful books on the reading list for the Learning Forum, the Society for Information Management's (SIM) executive education program for future chief information officers

But he recovered for some sun-

The list reveals some seemingly odd titles for the CIO-in-waiting. such as John Steinbeck's The Avard Dr. Tari Ramonyching's The Doneing Heaters and Sun Treis The Art of Wor.

Honissor more traditional man savement offerings balance out the reading ledger including John Kotter's The Porce Por Change. Max DePree's Leadershin is an Art Marmort Wheetley's Leader. ship and the New Science and Hall and Hawker's Power Manacresent Inventory.

Despite their diversity a common thread can be found in all 97 titles. They all bein to reinforce four key leadership skills: the shill Ity to road better listen better absorb better and learn from experiences, says consultant Dick Dooley, who established the original list of 27 books for the pilot program in Chicago just year.

"When was the last reading class you took? Fourth grade? nels first Bolton facilitator of the Boston program and a partner at MKF Consulting in Sudham Mare Did they teach you how to read a text, a selentific lossmal a technical book? Can you skim? How do

formation

you read those things? Rose do you

dienet one? For that reason the forum rocommends starting with the basics. Hose to Broad a Book by Mortimer J Alder and Charles Van Doren But despite its imposent title course participants grah wooden

stakes and form the sign of the cross at the mention of this book "If was like trying to lose weight You feel good when you're through. but what a pain to get there " cave Holene Covery vice received of information systems at Roadway Everess in Akres Ohio The needs lem wasn't the writing style, it was the size of the book and the amount of advice it offers on how

to mad a variety of materials. Cavany says this proved to be one of the most helpful books. She says it offers great advice on how to read any book for the most valuable information, how to use a tahie of contents to decide what information you need and what to skin, how to skim a book and retain the key points and how to do multinie medine and find the common

information from many sources. But what does Steinbeck have to do with running an IS organiza tion? More than you might think In his classic novel The Frant.

"the key lesson is to watch what it is that we value and to be careful of the price we're willing to pay for it," explains proparticipani Claire DeFazio, manager of MIS for the Gascous Group at Ave none really encount if you let non Products & Chemi ple do what they have to do and recals, Inc. in Allen-

tome Pe "That was one of the common themes editor management

understanding whal's amounted to you and what lengths you're williag to up to fin order tol obtain wining to go to jin order to joutain tost. Devador says. For impore managers was more their eyes or

On how when the locustre to be Or now another the resount to it one the stem of a New York deuter who truvels to the American Southwest to study Nation America con employee cabo to find himself an customs, only to this in

Thousand the impostance of diversity from this book " Definio tersoly from this book, favillating would have thought of having any relation - the whole Indian culturn and adapting them to our out ture. Hopenedun a whole new way tere tropeneoup

Pages to nibble on

One of the most number books among participants was the cartownstyle The Nibble Theory & The Kernel of Power, a two-part book dealing with how we treat others and how my discount our

own breath This is almost a children's book," Cavagy says, "using little nictures to describe what neonle do to other people." The book describes how we nibble at those around acts cut them down to size and make controlling coom langua For more traditional lessons or how to be a better manager and

leader, the reading list recommends. The Lessons of Erneri. ence How Successful Execution Develop on the Job by Morgan W. McCall Jr. Mishael M. Lembardo and Ann M Mornison In it though fer insight on how to develop your own skills, learn from experience. petwork with those around you and recognize opportunities.

For insight into how to develop true leadership skills not just management skills look into John P Vottorio 4 Disco for Change How Leadership Differs from

Or try William C. Byham's book Zapp - The Lightning of Empowerment, about the power of collectionment. This "fun book" as more than one participant called it, will perhaps be one of the most valuable in learning the lead ership lesson. Written in fantasy style. The book stresses the need to capower those around you to be their best at their jobs Empowerment can help a com-

ward them, "Cavany says Weithouse Dunameters would a resortate

"It's time we delivered client server on an enterprise scale."

Simple GU client applications from tent

We need mission-critical applications we can network and distribute everywhere.

/It's Time To Get Serious.

Introducing SILVERRUM ADE." The first architecture robust enough to support mission-critical client/server development.

Client/server promised to save money by distributing processing power throughout the enterprise. So far, the promise has not been fulfilled. While nice to look at, most client/server applications suffer from performance bottlemedix, a lack of consistency and virtually no quality control.



SOVERROW ADE is a model-driven encomment that enforces quality and consistency throughout the development process.

If you want to make client/server work on a mission critical level, it's time to get serious. No med an environment with the software engineering rigor to enforce client and enver quality and consistency across multiple platforms, operating systems and databases. A model driven, object-oriented architecture that beings complex applications to life quickly and easily.

You need the SIEVERRUN ADE (Application Development Brownman

A model-érives approach anchorsé by a powerful object repository.

Using a set of graphical took, Staffer of delines your application as a basiness model, including all components of clear and server programs. These models uponly as set of platforms that reaction a powerful object repositors, which sends in a powerful object repositors, a single SIDERSIN definition can then generate SQL and NSAC code for multiple platforms. This speech development, reduces maintenance and emission productions that are truly uniform from INIX to Macintals, SQL server to MNS.

Seriously easy. With serious levestment projection.

SIDERRUN applications are built, from start to finish in a graphical



Executing in Windows, Macrotish or 05/2, SEFERION developed applications have the matricul look and led ware demand. environment your development team will learn quickly. You'll racet user maximments and deliver full featured

future. And tune your environment for peak performance and maximum

Get serious about client/server

development, Call 1-800-537-4262.

serious about client/server.



SENERGY, In ILIE supports you from analysis and design through code generation and maintains in installed by a powerful object influency, your applications are truly perhabble and networkshile as an extension of the control of the

applications faster than ever before.

What's more, SIDERRUN applications can share data and processing on

cutions can share data and processing on any platiform within the networked enarptive: mainfrants, mini or workstation. Meaning you can man on whatever systems you have now, or might add in the three's never been a better time to get

SILVERRUN Serious client/server development

At long last, love?

The thorny relationship hetween IS and ton management man

finally he blossomina into fruitful harmony

Ry Joseph Martitta

o wonder many technotors manager feet like mistageted post ners these days. After more than foor refler more than tour toner management can't do en mon on diameter near

A new Nolan Norton & Co. survey of hir new bosons found high satisfaction with technology investments. Yet a recent Andersen Consulting study found just the opposite (see short) Mixed over tions also surfaced in the latest Comme terworld/Anderson Consulting survey

One

What stone? One rejects manustroped is cooing about the wonderful future you can build together. The next second they're in noring you, bitching about you or placking off your hend like a flower petal. You're a thing of beauty today; mulch tomorrow;

Could source bloom you for speaking into the executive suite some night and hacking the nower cord off the bons' PC2

lope springs

But lest you despair and exile yourself to the deep est bowers of the tane lie brary, subsisting only on black coffee and Tie-Taes. take heart - new romance may be springing from travail

There are sime finally that technology and business leaders are entering a happier new season, tronicalby or perhaps fittingly, the factors reun it

ing the estranged pair have more to de with business than technology. Corporate cost-cutting downsizing and widespread re-engineering are foreing a new intimacy, (Someone, after all,

has to tackle the messy task of turning eved processes into reality - and to find cheap new ways of replacing lost Now, as any good counselor will tell

you, it's crucial to hear the other side. So we asked well-traveled insiders about executives' feelings on information sys-

Besides chief information officers

Andrews survey were manufacturing Anterior survey were manufacturing Some of the completes that miss may ring poinfully familiar ig puisseny nazionaz. "All soni do le mend amend amend!"

'Att you do it spend, spend, spend: tenningement against never to sample. Or Don nearboot

In some ormaizations committee make its more than half of ounital comes. ditages to business bands and zing from the \$200 hillion that rommenter shall not annually for information took

molecule and comice longy and services. throwing out finformation technology! or strong outside to outsource " years for Lower on Anderson Convoltons sonice mandred manager That the many butter control of their areats and a strategic arced and on processes."

Lower and others note that acviety shout whole commeltibutes and out cutting make a clear return on technol-

ore investment more important than or or Which leads to the second big gripe. "I had don't understand you This old white incl non't do away That's becourse the value of 18 remains maddeningly hard to infer says Jerry Kont

sign of or expension director of Babson College's Center spring: of Information Managemont Studies in Widowles Mass Management is An MIT study foun convinced information a 64% return on intechnology can be stronged but if ion't coite. ant in infer.

Bur example Kanter notes that no solid measurrements exist for correlogy in fact produce lating tS spending with sales-retention rates We must find new med-

and time to produce." You're not trying. Unrealisticulty high hopes also strain many

relationships, observers Managers and staff people can out to erther a unreadsheet in an hour and a

half, so they think if you have a larger box, that you should be able to develon software faster," Lower says. "It's all woser famil!"

William Morin, director of technology ficy at the National Association of Manufacturers, notes that top execu-

ives sometimes unfairly blame IS for poor business performance. Morin, whose 12 500, member trade association includes some of the nation's largest firms, also says executives often w computers at sticky problems "If you've got an arrow through your

aspirio and it still horty you can blume the aspirin or you can blame the arrow" he

Stons of spring That's the had some But technology has also given many top bosses reason umile year Ron Smile, says Nondent of The Notices red - Distributers The Washington-based

trade economicies represents 40 000 corrections and titl

Schriebman points out that dear whole calenc doolded automate 18 or 15 voces are and circle mathia Chidan SSS of

their orders are taken by felectronic da ta interchange) and transferred to sun ntiers "he says. The result? "They've reduced gross margins from 10% to 15%, to

Observation The Indeed Corning Inc. General Floring Co., Wal-Mart Stores, inc., Federal Nalional Mortgage Association and hundreds of other crackeriack ormanizations have shown genuinely impressive payoffs from large technology projects. No poestion: Computers and networks are beining boost profits

Boly Grail jound?

in fact, a recent MIT study claims to link IS spending and profits — the techno-Holy Grail. Professors Erik Brynjothson and Lorin Hitt studied return on technolon investments for 380 large companies in a four-year period. The combined ayerage for manufacturing and service see-

While Brygiothson says more careful measurement is needed (and critics agree), he's convinced that information technology "produces real benefits in quality customer service and time to pro-

Lesbe Ball, president of Business Transformation Resources Inc., a Seitu ate. Mass., consultancy suggests that after 15 years of heavy technology builden. U.S. business might finally be ready to reap the benefits

Ball notes that the productivity of U.S. workers rose 3.5% in 1992 and 3% last year, ending a long flat or negative stretch between 1980 and 1991. "We may have made the jump to the new informationers," be says.

Moreover, more top bosses are hot about technology, especially in large pseutestrategies.

They love you ... ----... they love you not

> Barry Weintrob, technology committon obstruct for the Pinancial Executhese destitute a Mischigator board trade appointion case that despite tight

> First many chief financial officers are as id technology boosters "I see a determination to Improve the use of information technology in the most officient way possible," says Weintrob, a self-described computer enthusiand the assistance of

What's really important Ultimately, surveys matter less than how

your partner says you're doing. Why not refocus on building key relationships through informal peer insiches

and walking around the office, Kanter about technology, says John Halloran. sanging principal at Notan Norton

Why not bein them? And, Andersen Consulting advises minimize conflict by getting manage ment's blessings on a formal systems plan. All agree that managing expects

So for better or worse, husiness and technology executives seem destined to be united for the long haut - if not with a warm embrace, then at least with firmly classed bands

Both sides might do well to take to heart the words of Antoine de Saint-Exupers, a little-known French thinker. He wrote: "Love does not consist in gazing at each other but in looking outward to gether in the same direction.

Magtitta in Computers world's senior editor, cor-

Endless possibilities. Endless Unlimited Supply. Okay in our exite.

ment, maybe we've exaggerated a bit. But the truth is that we've reduced the prices up to 26% on selected Server 85 and 95 models. And we've prepared enough stock to keep them flying out of here. But don't wait forever.

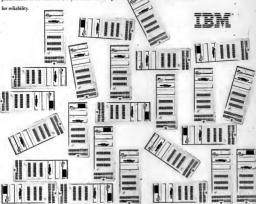
With their bottleneck-eliminating SynchroStream* controller, IBM PS/2 Servers can take full advantage of their Pentium* 66 MHz or 60 MHz chips and 256KB of L2 Cache. What's more, the PS/2 Server Array models feature a highperformance RIAD controller, so you don's sacrifice speed Which all means that when it comes to your workload, the possibilities are well, almost endless.

Plus the whole PS/2 line comes with a three-year onsite warranty with four-hour average response time.*

For more information about the PS/2 Server 95 and

entry-level Server 85 models, call 1 800-772-2227.

And find out more about the servers that are



Calendar

PTD 27 MARCH 8

oware 'na Scotter Workshop Colum Conference & Fano. Roston Feb. 27, March 2 ... Contact The Confessors Court Sentrales Auto contract and

ler & Interirator Symposium on Berumani

Contact The Rheimer Grown North Scitzate COMPACE THE ADDRESS

> Engineering Document Management Systems tagreering Document Management Systems 'na. Orlando File. Rob 26-March 3 - Consenpa Centron, ran, ren 25 maren 3 - Control

Birth Annual Computers in Libraries 'ba. Artisc. ton Un Est 26 Month 6 - Contact Monthles too, Va., Feb. 28-March 4 — Contact:

Searchmenting: A Key to Business Ear Description of the second for Manufacturior Extelleger, Wheeling, III. 1200-120-220

And Annual Press and Markey World Control March 1-3 - Contact: Digital Consulting, Inc. Andrew Mere (1990) (Co. 1990)

Second In Orlando March 24 - Contact Technology Solutions Very Nest NY (202) 505-

Costing & Chargehack Workshop: Chicago, Ill. March Ld ... A marks bon that combines instruc-March 3-4 — A work in place marks have to me nion the ream of custors and charmings in prove the range of costing and chargetonic in-Committee of the Committee of the Character of competent conjunction

ence. Tucson, Ariz., March 7-10. - Contact ADDRESS DESIGN CAN CARD DEC LICE.

ningic Confe Mobile 'ou: A Tech tion San Jose Cellf March 7-10 - Roose mobile technology Contest Reb Johnson Trebusium Pastures, New York, N.Y. (212) 606.

The fourth Assess I PRTs in the 'cost Technolog Trends, Strategic Applications and Marks Directions Washington March 7-10 - Contact Business Communications Review Mandala III (900) 227-1234

Darmech CAD/CAM, CAS Strategy Workshops Cambridge, Mass., March 80 - Contact Duratech, Inc., Cambridge, Nazz. (617) 354-

puter '94, Telephony Conference & Expesi Tien Deline Moreh 8-10 - Contact: Ilm McManas, Trincom Library, Scothamoton, Pa. (215) 355,7996

The Artis Manufacturing Esternics forces These is "Exploring Ways Agile Competition and Virtual Companies Impact Your Company's Bettom I Inc." Austin Towns March 5-10 -- Contact: Artillov Porum, Bethlebern, Pa. (215) 758-Re-engineering: The Implementation Perspec-

the, San Prancisco, March 5-10 - An educational seminar providing on introduction to the concepts and objectives of re-engineering, with an analysis of the business factors driving it. Instructor will be Dr. Michael Hazzmer, The Center for Re-engineering Leadership, Cambridge, Mars. Contact: Hammer and Company Cain bridge, Mass. (617) 354-5555.

MARCH 13-19

The Ranch oth Annual Executive Confe ins, March 13-15 - Contact: BancA. Dallos. Texas (214) 758-0015.

1994 International Integrated Manufacturing Show & Conference. New York, March 14-17 — Contact: Manufacturing Execution Systems Asnoriation, Pittsburgh, Ps. (412) 781-6511.

Re-engineering: The Imp the. Boston, March 15-17 - Seminar providing an introduction to concepts and objectives of reengineering. Instructor will be Dr. Michael Hausmer, The Center for Re-engineering Leadership. Cambridge, Mass, Contact: Hammer and Company, Cambridge, Mass. (617) 354-5555.

ation. New York March 17-18 - Contact: IBC USA Conferences. Inc., Southborn, Mass. (506) 481-5400

Kemo

IT's T'S This

THAT WILL SET YOU FREE

If you can't even get internal agreement on

workflow system is setting one off the ground for the sid and betterment of your mobile field force is probably an even more remote possibility. And while wore techies down the half can must you charter and you on chart server technology, collaborative knowledge sharing, or remote LAN access, has anyone brought you a systems approach smart enough and simple enough to work out there on the most?

So let's talk "time out" here, let's talk reality. let's talk free seminar with some very frank discousions about fleet computing applications and descens

of organizations just like yours that have already implemented uncertainly field communications systems that actually do automate their most remote and/or mobile business transaction processes

We're talking centrally created and managed electronic forms, documents. and reports, all invisibly linked to central systems and databases, neatly supported by integral electronic software distribution capabilities and eminently usable by even your most computer-shy folks in the field. All of which could make your day to day business life a little less of a hall-and-chain existence



XcelleNet. Now playing at a major metropolitan area near you.

ATLANTA, BOSTON, BURLINGTOR (MA), CHICAGO, CLEVELAND, DALLAS, DENVER, DETROIT, EDISOR (NJ), FT WORTH. HOUSTON, TRYIRE (CA), LOS ARGELES, MIAMI, MIRNEAPOLIS, REWYORK, SAN FRANCISCO, SAN JOSE, TORONTO, FOR INFO, CALL 1-800-322-3366.

AUTOMATING REMOTE POSSIBILITIES.

Fill it in. Fax it in.

Save \$8. EAY NO 508-626-2705

BUTSLANDUSTRY (Circle circl	ALCOHOL:
	person libra
Manufacture (other than computer) Francokrassance/Feel Cobin Manufacture/Colories	NAMES AND ASSESSED.
Manufacture (other than computer) Francostraurance/Feet Conte Manufacture (Conte) Minimum Conte)	(American States)
Manufacturer (other their computer) Francischerungscoffent Estele Montent und Gründer Montentin Francischerung Georgen Service innome (PF) Georgen Service innome (PF) Georgen Service innome (PF)	Libraries States
Manufacture (other from controlled) Francoid house on Feet Control Molecular and Gustain Molecular Teste Sussess Senses (and Settled Sussess sussesses Sensesses) Sussesses (and Sensesses)	(American States)
Manufacturer (other their computer) Francischerungscoffent Estele Montent und Gründer Montentin Francischerung Georgen Service innome (PF) Georgen Service innome (PF) Georgen Service innome (PF)	Libraries States
Manufacture (other from controlled) Francoid house on Feet Control Molecular and Gustain Molecular Teste Sussess Senses (and Settled Sussess sussesses Sensesses) Sussesses (and Sensesses)	Library

COMPLITERWORLD

Fill it in. Fax it in. Save \$8.

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$39.95" per year - a savings of \$3.00 off the basic subscription price.

FAX NO. 508-626-2705



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO 55 MARION, OH 43306

POSTAGE WILL BE PAID BY ADDRESSIE

COMPUTERWORLD

P O BOX 2044 MARION OHIO 43306-2144

his billed billed bedded delete billed



NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

PRST CLASS MAIL PERMIT NO 55 MARION, OH 43306 POSTAGE WILL BE PAID BY ADDRESSEE

PUSTAGE WILL BE PAID BY ADDRESS

COMPUTERWORLD

P O. BOX 2044 MARION OHIO 43306-2144

IF YOU ONLY ATT

Announcing the most important networking and computing event over held

orking changes minute-to-minute. LAN, WAN and telecommunications are converging into a single all-encompassing niness environment—connecting not only desktop to desktop, but company

only occurry to company NetWorld*-Interop* 94, The Net-mond specifi-1 cally to mirror these changes. This unique forum puts This unique torum together the two biggest names in networking events. NetWorld!

LAN community. And Interog? the proving ground of interoperability for the WAN and telecom worlds. What you get is the first truly

all-in-one networking forum. can get suggestions for designing and Replacebrokens 56 is protocol to interno Company. Monto is a registered transmiss and Configuration Climic Internet Structure, internetional and Section Structure and Engineery Structure, internet Structure

NetWorld+Interns 94 is the eathering place for the industry's best and brightest.

Only NetWorld+Interop 94 offers you this . comprehensive educational

comprehensive of comprehensive of comprehensive free.

• The Internph guided tour of live multi-vendor. The InteropNet, featuring a guided tour of industry's only live multi-vendor, multi-protocol network that mirrors the inter-

operability challenges you face today can learn about the richness and diver sity of the Internet Start-Up City," an exhibit area dedicated to showcasing innovative new

products and solutions from emerging · Configuration Clinic where you

configuring your network from the best in

 CNFP# Lobs a forum for the trait fer of technical information from the vendors to the network computing professional. TSANet where Technical Service Alliance members join together to solve

your biggest networking challenges right on-the-floor. Solution Showcase" Demonstra tions, cooperative technology demonstra

tions by leading vendors including ATM, APPN, Fast Ethernet and You will see the hottest new technologies demon

strated by more than 600 of the world's leading networking companies. You'll leave the show ready to make the best possible buy ing decisions for your company Because when you see it at NetWorld+ Interop, you know it works!

Don't wait. Pre-register now and attend FREE!

NetWorld+Interop 94 Las Verus takes place May 2-6, 1994 (exhibits open May 4-6) at the Las Vegas Convention Center. For more information and details on how to attend FREE (a \$50 savings), or to become an exhibitor, call 1-800-488-2883 Fax: 311.

Outside the U.S., call 415-578-6900, or contact us over the Internet at

networld@interon.com Don't miss this unperalleled chance to experience the best in networking.

If Anything Ever Comes Out Of There, It'll Be Through A Cisco Router.

It is animating how far your spleme of utilisence can mech, cree you get your bands on the right toucies. No matter how lay your seriously grows, Cacco will help you spentled us time mensaging it, who then adding personnel, With Carco-Winter a seriously designed, a seriously designed point router, delivered, automatically from one central location. Carcillations automated tasks such as monitoring and controlling your property and property of the property government of the property government of the property government your forces of the property of the property government your forces of the property government of the property government your forces of the property government your property governmen

routers give you these capabilities. So follow the leader Call Cisco today at 1-800-859-2726 We'll show you a way to manage a growing network that will save your company both time and money Today, and for many, many highly years to come

The CW Guide to Network Management



Surely the tremendous de-

technical support.

velopments in network

management during the

last five years do a great

deal to tackle today's dis-

he downsizing. rightsizing client/server revolution has been particular-. ly unkind to net-

them before acquiring and deploying a new technology. Yet everyone expects them to make it all work and pro-

work managers. tributed environments. Ex-Most often, no amples of some state-of-theone consults art products include what are commonly referred to as "management platforms" - Hewlett-Packard Co.'s OpenView, IBM's Net-View/6000, Cabletron Sysvide the highest quality of tems, Inc.'s Spectrum, Net-

Lahs Inc 's NetLahs/Manager, SunConnect, Inc.'s SunNet Manager and the Relational Object Data Manager in IBM's NetView/390.

Enterprisewide: Still no such thing

COMPANIED PROMPAGES

As awad as these products are not one performs the job of what is commonly being design nated the end-to-end enterprisewide network manager or simply the "enterprise manager" manager, or simply the 'enterprise manager. But that hasn't stopped several vendors from trying to position their products as enterprise manager Unfortunately most claims are hased more on marketing department ereativity than product canability

That's not to car those barren't been must advapors in these management platforms, or what we'll refer to as "intermediate agreem. tion reviews." Turks these enviews out do and downell includes * Discover network topology automatically, dis-

piay network components graphically and enstomize graphical views

· Display network alarms as messages and coior changes in the irons representing network a Allow the executor to stather additional infor-

malion about alarms to diagnose network nanhia *Collect and granh certain types of statistical *Allow eastomers and third parties to use the product to develop their own management ap-

SOUTHON SYSTEMS collect infernation from the managers in the

information from multiple alongst management systems (one level belt as least as they belong in the cases metional family florations defined in

OK ELEMENTS are the bale, using, bridges, made -

plications and interrute them with the rest B their sextem

t I aunch ambientions for enecific munustement tacks and monitor them

But it's just as important to understand what these products can't do More than one compano has remembered an appropriation system with enterprise management in mind and discorand the limitations the expension was

Picky about protocols Aggregation systems have an inuete protocol

hise and work heat with their native protocols Their internal coffeens anobitectures emphi caldisplays, alarm analysis logic and program--in- and assert in the day of the day signed to work best with a specific protocol. For example, Simple Network Management Protocol (SNMP) managers do not manage

IRM's SNA X 25. Open Systems Interconnect intermed Services Digital Naturals or telecommunications feelilities as well as they were -- TOTAL desires even with extensive mate. ways and translators

For example both NetView/8000 and RP's Oran View home added SNA supports however open race mare modes acres support, noncres, nonment as IBM's NotView 100 - on norman tion system for SNA/Advanced Prento-Pren



OPENVIEW NETS TOP SATISFACTION SCORE

Buyers' Satisfaction Secretard was achieved by Hendett Dooks at Co.'s OpenView Version 3. OpenView received higher ralings than IBM's NetView/6000 Version 2 Release 1 and Senf'ognet Inc's Sun-Net Manager Version 2 x in the six esteguries rated the most importent to network money ment system week

Each product was rated only by its CONT USERS. Total scores were derived from a weighted average of the importance and satisfaction ratings How users perceived the most

recent product enhancements was also assessed. Users of each product were first asked if they were aware of the improvements. Those familia: with them were then asked to indicate whether the enhancement improved or worsened the product's

Products were selected on the basis of their market-leading positions. User lists were supplied by a nonvendor source, and only users currently using the products' latest version completed the survey.

HEWLETT-PACKARD CO. TOTAL 78

OpenHew's traffic-reporting accuracy and data-collection capabilities were both sebanced. Users said the ined number of icon colors in the user interface greatly improved ease of use. Begind future enhancements ined better on-line belp, more speed

Helling/6000 Version 2 Release 1 TOTAL 74

RESPONSE MASE: 24 USERS

IBM targeted NetWeet's case of use with improvements to the control deak and the customizable views of the network. lisers familiar with the changes said they greatly improved case of use. But many mers said they did not notice them, Desired future enhancem clode better control over LAN devices.

RESPONSE BASE: 16 USERS

ments in Version 2.2 only gitly improved the product at best fine to mees. Users noted that der support was only sligh ed by its partial imp

WILL THEIR NETVIEW/6000



When IBM become an OEM for HP's Once View and from it formed the core of NetView/1996 everyone ected the new offering to be a tag-along prodnet Rut IRM surpassed expectations by adding ent onhancements and developing a significant ennancements and developing a strong marketing campaign. With one of the best third-party programs behind it. NetView is now one of the botter offerings on the market

a Simifficant enhancements to case of use • CMIP support

* Announcement by most major networking yen dors to port their applications to IBM's platform. significantly strengthening third-party support a Connected tion with Digital Fourteenty support

Polymenter product •Good customer reception for Systems Moni-

tor/6000, a systems management application for Unix-based LAN server environments. Trouble Ticket/8000 for problem management.

1994 gods Avallability on additional platforms, such as Windows NT and offerings from Digital and See Mt. prospetson, life Support for SVM Land distrib uted new managers is also expected.

and country and arrival

VIRTE LINE OPENVIEW



Onen View is already recomized as one of the nee-

mice conducts in both the OSM and and more more kets HP's major objective for the product in 1983 was to look beyond networks and introduce sysand a second second second second

roView Operations Center for managing

nt/server environments ment support for SNA and Novell. Inc.

· Connent anh ration, alarm-filtering · A strengthened multiplatform offering, with

OpenView now available on Hitachi Data Sys-toms, Inc. and Data General Corp. systems. · An OFM Partner Certification Program to encure high-quality integration of third marry and cations for OpenView

ents la systems ma Integration of SNMP and Common Management Information Protocol (CMIP)-based systems additional platforms such as Microsoft Corn. 's Windown Normal House

WALL THAN SUNNET MANAGER



Though SunNet Manager still enjoys the larges alled been of all platforms it has failed behind some of the newer versions of OpenView and Net-View 9000 in functions and features and has been having a difficult time competing against them. While 1963 was a quiet year for the product, major ents are planned for 1994.

Several seas of one discovery and significan-

ing ephaneements

Support for SMilP Version 2.
 Availability on Intel Corp.-based platforms.

*The new Cooperative Consoles product will allow one SunNet Manager to share information

 SOL-based consolidated reporting via the new Cooperative Reporting product.

*The acquisition of technology from NetLaha, Inc. with the roal of buildings distributed object or ented management system, Encompass, by the fourth quarter

Networking (APPN). Nor can they handle the An alarming limitati forom SNA notworks (100 000 olive torminals) that NetView/380 can

Don't hope for integration

Neither can appreciation systems provide an interrested view of the enterprise network So for example, you cannot get a single view of the interconnectivity between your IBM front-end processors, controllers and terminals and your routers bridges and LANs.

aggregation systems on large enterprise networks, especially those with a large SNA nonulation. This is the most common complaint from omers with large networks Even in networks where SNMP devices dominote, users are beginning to realize that SNMP

polling takes a big toll on network performance. SNMP Version 2 may belp with this problem but only on TCP/IP networks. As these aggregation systems move to distributed architectures, they might become better able to bandle larger networks. However, this is still an unknown.

Only all ohtly scalable Capacity and performance are a problem for

While several aggregation systems repour multiple protocols, there is no way to correlate alarms across protocols, whereby propedary alarms (due to the failure of a higher-level com ponent) can be suppressed. In fact, most prod-

ucts cannot do alarm correlation within their nation protocol An expert system embedded in the produ would solve this homeone must assimumation

systems do not have an expert system extension worthy of mention. Distributed delusions

Almost all aggregation systems have the word

"distributed" attached to them in some context. This is where marketing creativity truly shines. The fact is, no aggregation system can share data with another manager on the net work, not even between managers from the

While SNMP Version 2 defines such a capa hility it has not been implemented on any of the platforms. APPN has a much more robust architecture for distributed management than SNMP, but again, implementations are lacking Network management, page 83

ments of an enterprise manager, what can a customer do? She a price tag of \$150 000 to \$300 000, you can add an inte gration system (see diagram page 88). AllLink Network Management Co., Boole & Babbage, Maxm Systems Corp. and Objective Systems Integrators all specialize in building these platforms

it is important to notice the need for gateways or transla tors in the integration system. An efficient integration system would use notive-mode interfaces to the various management protocols. The number of gateways required and their quality is an important purchase criterion.

Unfortunately, even the integration platforms may not solve the problem for everyone. They too have scalability problems for very large networks. The quality of the integrated view also varies. And there are few third-party applications for them. But customers will definitely find less protocol bias, better integration of network topology, alarm correlation, expert system extensions and more distributed architectures with these platforms. - Aful Kapoor

No other sui this common



le can claim look and feel

PC Computing's

Products award_no other suite has one

The Rorland Office

This new suite

Most Valuable

has three

Introducing the Rorland® Office 2.0.



Includes WardPerfect 6.0 for Windows plus the Workgroup Editions of Borland Owattro Pro S.O for Windows and

integrates the most award-winning prod-Borland Paradox 4.5 for Windows. ucts of all time. In the

categories you want most-word processing. spreadsheet and database. You only get software you want to use. Not shelfware.

Truly the hest-of-breed products.

When you buy the Borland Office, you get WordPerfect® 6.0 for Windows." the world's first document processor with integrated text, graphics and data; Borland Quattro® Pro 5.0 for Windows, the easiest-to-use spreadsheet with the most analytical functions and graphical tools available; and Borland Paradox® 4.5 for Windows, the best-selling PC database featuring built-in SOL connections to all the popular database servers for instant, easy access to your data. .

A new level of integration.

You want products that work well together. Ours do. With PerfectFit Technology, they have common icons, button bars, and crossapplication macros, as well as resources like spell checking. So each product "looks and feels" the same.

And where other suites stop at integrating your applications with OLE, we also integrate your people. The Borland Office is the only suite that's workeroun-ready right out of

the box. So you can automatically share data Anywhere.

The Design Application Director lets you access applications and common

tasks at the click of a mouse. The easiest ungrade for DOS.

The Borland Office gives you the ease of a single installation procedure, "coaches" that teach you, and the best compatibility with DOS products. Plus, we offer the best technical support in the industry.

So making the move is easy. And with the best-of-breed products, you'll be glad you did. Visit your local reseller, or call us at (800) 526-5039 today.

Borland WordPerfect

We've Opened Up a Whole New Way to Look at Open Systems Management

OpenVision. It's a philosophy, a company, products, services, and business practices all focused exclusively on solving open systems management challenges. In fact, we're the one-source resource for distributed, bettorgenous, client/server systems management solutions.

With OpenVision, our innovation gives you the advantage. You select products from our comprehensive, integrated sails of best-of-breed systems management solutions in operations, performance, storage, and security. You're supported by a full range of fixed-price, customer-centric services that support our 'no shelfware' commitment. And you benefit from our innovative.

platform-independent pricing that lets you upgrade your

computing environment without additional bicense fees.

We think it's the most innovative vision in systems
management. But don't take our word for it, make us
prove it. Want to hear about it first hand? Call us to

reserve a seat at one of our upcoming seminars. Want to read about if Request a copy of Open Systems. Management: The Challenge of a New Pan, one of the issues from our OPENVISIONINSIGHT series of open systems management reports. Both are free, both will open up your eyes to a whole new perspective on open systems management. 1800:255. OPEN.



NETWORK MANAGEMENT COSTS

COST RECAKDOWN ARRIVE STREET

Here are average costs for each component of a distributed network management system

- IMPONENT: Network management monitors, agents and recessors in each LAN segment to gather and forward data. SAMPLE VENDORS: Notwork Concest Corp. Manufal and
 - want Technologies, Inc. COST: S0,000 per network segment managed (S1,000 for a Apr. \$7 666 for an analysis.)
- COMPONENT: Designer and LAN more

SAMPLE VENNES: Frye Competer Systems, Inc., Novel, Inc. (Northern management applications), Intel Corp. (desktap management products). NETP \$1 000 to \$5,000 per application, for a total of \$12,000 to \$25,000 per domain

- COMPONENT So intermediate presention curious or "Some COST 530,000 to \$50,000 per domain, net including the workstation or colleged professions
- INPONENT: An integration system to co est Cife and fractional man
- SAMPLE VENDORS: Master, Books and Rabbarrs COST: \$250,000 to \$1 million.

MODEL THE YMAZE COOK

--names are the expensive nieces. By agents I mean the things that manage individual network components. An Pibernel man



sand dollars, if you have a new Here's an interesting problem, Wellfleet Communications inc sells you the management soft ware for its RCN router for \$300, relatively chean But with come uncless our an intelligent but use don management coffeens management \$5,000 That's more than the hish would coul. Because of the coul I think a lot of people buy the hardware without the management plutforms, even though you can't run your equipment without it They they'm stock The software shouldn't be an option. It should be hundled

We're also enceding a lot of time admenting our own people, training them to become expert enough to use these management systems effec-tively It takes a sophisticated person to understand what these management applications are

chondnerson. John Dublel, manager of planning and tech-

nology Parton Edison Co.

ben you out in a network management mytem unu most of your money ing the physical information included in the detabase



network. But it won't tell you the physical environment. It will tell you there's a router out there with an IP address and 16 interfaces, but it won't tell you where those interfaces are located in the chassis or how they're physically connected to any circuits. And then most SNMP networks have a layer of non-SNMP equipment

The longer-term true expense is staffing and maintaining the system because it's an enming permanent part of your business. You put a couple of people in place to keep the system current with new networks, interface to other groups and make

Larry Harl, president, Man Integrators, Mount Laurel, N.J.

SECOTO TIES OTHER CONTENDERS



y it's available on many platforms. Its glaring tness is a lack of third-party application supp cont changes to the product include fibury ist

for SNA support; an agreement with AT&T whereby AT&T would manage its switches using Sc and new ports to HP OnenView IRM's ATX Nov Inc.'s NetWare Management System, native DOS via strum for Open Systems 2.0.

In 1984 Cableton will form on a more di architecture and support emerging technologies such as Asymchronous Transfer Mode. It also plans to increase third-party application support by strengther ing its sunder relationship was

NetLabs is goared more to providing one technolog to vendors than to end users. Its products are Unixbased and available on several major platforms. Manment applications are highly modular so customers can choose the functions they need.

This year the company will focus on in net-oriented, truly distributed platform, DiMor 3G, which uses the International Standards Organi ration's CMIP for distributed management to over come limitations of SNMP Version 2. Another major NetLabs objective is to make its products more suit able for end users as off-the-shelf products.

on NetLabs). Com One Water / Probate on Dan and OS/P relationship

Left. Inc. - VisiNet (runs on OS/2, DOS/Windows)

s. lec. - Pathway Management Station

CONTINUED FROM PAGE 89 Interestingly enough, SNMP manage-

ment platform vendors are the loudest to proclaim the openness of their products, and yet these platforms become the most closed when you try to extract informa-

tion out of them. Truly distributed capabilities will likely be announced this year, allowing manager-to-manager information sharing between systems from the same vendor. The marketplace will have to put serious pressure on the sendors to see informs tion sharing between aggregation systems from different vendors

No integrated applications Finally, none of the aggregation syste provides enterprisewide integrated management applications for problem management or configuration, accounting security or performance manage-Frankly, it is doubtful that vendors can provide such applications for large netorks on their existing platforms with their current pondistributed architec-

tures. Solutions will first emerge from third parties, such as Remedy Corp. Aggregation systems have the poten tial to evolve into the role of enters managers, but they cannot perform that

role today. Even with integration aver tems such as those from Roole & Robbage, Inc. (see story page 89), the requirements for scalability, integrated applications, peer managers and beavy duty expert systems have not been met in any of the current products. Do not let any vendor tell you otherwise.

Kapoor is principal of Kaptronix. Inc., a consul tancy in Howarth, N.J.

We could tell you we're the leaders in altest /corner application development

(But all our competitors have already claimed that nosition.)

> # Tou'll find a lot of companies who may they can net was to alignat/servery and they are the markless is they often wise their relationship with you as a dustomer-wendor one, wirtually disappearing the nimute the sale is complete. We are not simple software wandors. Instead, we look to form partnerships with our quatomers, and work one day at a time to create a solid set florible forement for olient/server computing - as we've done for a great many of the Fortune 1000s. That we offer wen is a full range of services and people dedicated to making eliget/server work, backed up by a multi-mlatform muits of devalopment and reporting tools. Tools that draw their strength from HCMAD's advanced 4GL technology and expend your reach with the graphical reporting power of Front & Center. All of which enables you to build robust applications eccession INC and other major date sources such es SGL Server and Orecle from PC and Unix platforms - without sacrificing everything you've invested in information technology. So while the title of industry leader has already been staked out (by a different company every week), we still intend to lead you to elient/server commuting. 1-800-641-MUST. We want to work with you.

Helping you migrata to client/eerver.



BENELEZ CANADA FRANCE CENMANY ISRAEL ITALY JAPAN SDUTH AFRICA SPAIN/FORTUGAL SWITZENLAND UNITED STATES UNITED STATES MODES IN A registered trademark and Print & Conter in a trademark of 128 interruptions ST Other products operating benefit she the trademark or registered or formal or the content of the

A year of market consolidation

tandards have been everyone's - Client/server ever most hope for comprehensive notwork and systems management but the standards procour mouse stouch

I and some market femore be man to take on an incommendant important role in creating de facto management standards and separating the viable aunallow from the marrinal ones. This trend is likely to continue into 1994

► Management platforms is one clear area. instellests at standardization Digital Fountment Corn was the first unnder to throw in the town on its own

pintform contender DECrace In a surreine mean Digital named to back IDM's Not all seen money than a vect.

Digital's own bardware and op erating system products SunConnect Inc and Not-Labs. Inc. became the next pair to join forces and back a single not of a policetion process may be

interfaces based on the Netl abs Differen 3G product, SunConnect is licensing the software from NetLabs and using it as a havis for the second generation of Sun Not Manager, due in the fourth quarter.

These developments leave three major. comme various for cofference developers intoward and maning time on the defeate. standard in management platforms; Hewletf-Packard Co.'s OpenView, which entered 1993 with most momentum IBM/Digital and NetLabs/SunConnect. Cabletron Systems Inc with Specfrom and Novell Inc. with NotWork Manadvenced System (NMS) are still nuching their products as platforms. Novell is do ing well in the middle tier of the market. However it's hard to see hour Cabletron can continue to go it alone in this market.

nent is another area commission hard noved consolidation In the first part of 1993, HP further strengthened its own already solid capabilities in this area by acquiring start-nn Metrics Network Systems, Inc., whose NetMetrix monitoring and analysis evetems bad been receiving high marks. HP is combining the capabilities of these products with its own LANProbe and Fore systems as well as with its Oren. View platform.

Responding to this challenge, Network Genoral Corn, the market share leader in network onabytic systems acquired start-up ProTuols, Inc. inte last year. The ProTools product was the most highly developed measurement and analysis system for Token Ring LANs, and it nieely complements Network General's strength in the Exbernet environment.

prostost problem today for systems mangreatest prodem today for systems in agement. A host of companies are po

The platform management adopt a more nunding their products to cover systems management, Last year, HP introduced Operations Center and IRM began to of Cont All Market

At the same time, data center syste management wenders such as Boole and Babbage, Inc., Legent Corp., Candle Corp., Persurine Systems, Inc., BMC Softwarm line and Computer Associates In termetional les have been removitioning themselves to take advantage of the

growing market for managing Unix and PC-based elient/server sys-

> These wendom have often turned to acquisition to expand their canabilities. Legent has been very appressive taking a 40% stake in the bottest of the distributed Unix systems manamment sendore Tiveli Sys. tome Ine Lemmi she hought

Network Inc. maker of Paradiem a com prebensive package for managing beterogeneous Internetworks Similarly Perogrine acquired start-up

Network Edge, Inc., which was producing HPOnenView-based applications for managing NetWare systems. Another consolidation more in this ar-

en is the merger of Sterling Software, Inc. and Systems Center Inc. whose NetMaster product family was the only rhed to IBM's mainframe NetView. It's not clear vet how this merger prepares either of these companies for the new world of

Lastiv a group of new vendors is specifically targeting the client/server man-

actoment market including from Vision Technologies and Tivoli. But the biggest shadow over this market is cast by Microsoft Corp., with its Hermes product for desktop management. Most vendors have pledged to work with this effort, which Microsoft is trying

to make into a new de facto standard As for Novelt it has concentrated on server management with NMS, but it appears to be week in providing comprebensive desktop management solutions Other than Microsoft, no vendor has any clear dominance in this market. In 1994 a lot of smaller players will most likely



Written by James Heeman a vice president at Northeast Consulting Resources, Inc. o. Boston firm that executations in stratogic management and information technology.

June 14, 1963. Cindy Smith plays with color.



Thirty years later her business depends on it



Introducing the QMS ColorScript Laser 1000. Now your business has total freedom of expression.

For Cardy communicating elections critical information guidally flashesly and in hellitate role is into the brieflowlood. These by the depends on the OSC colories¹/18 cert (100) Point System. It frest he is print critie from and leitherhead with color is gos, images and high quality best without changing appet it somes better does not develope general flowers, bettered and multiple sets of supplies and uses standard paper and transparencies. It is improve her message by highlighting by data with one of in multiple protectations and decomment. All defend connection to a variety of networks and suppose constitutions and decomment. All defend connections to a variety or december and suppose constitution and but general great part and a per content in the large protectations and comment. All defends connections the variety of networks and suppose can make the but general greathering and a per success of the first impromal prisons. This, can employ substantial.

Save money. Save time. Free yourself from limitations. Discover the advantages of the OMS* ColorScript Laser 1000 Print System.

- Luser color and monochrome printing « Compatibility with PostScript" Level 2 and Level. I. pt. D.*C. and HP-G.*

- Threltype four scaling « Automatic collision» « Sumultaneous input and automatic crudiation switching « 65 resident top from « EFKolor" and Colorimentic off editionation and Apple Colorisym. George portile « Supports DUS, Windows, Macintesh" and Unita" applications « Software locable system upgrades

- Supports DUS, Windows, Macintesh" and Unita" applications « Software locable system upgrades

- Supports — Supports —

Expression is a serious business.
Call QMS today at 800 392-7548 or 205 633-4300
for the name of a reseller demonstrating
the QMS ColorScript Laser 1000 in your area.



Q-Fax 800 633-7213 • Canada 800 263-5508
(MC OE Colory and to (MC log on palentiles or represel palentiles of (MC log in the frecing) is indicate of white forms increased which may be represel or action conductors. If other





NetLabs/Manager: Support, interoperability popular

Netlahs/Manager

rworld's Firing Line is an evaluation based on interviews wit rusers at corporate and educational installations. The produ

■ NotLahs Inc 's NotLahs/Manager is an easyto-install network administration program that offers flexibility and good support for standards, according to users.

Fuglinators also said that reporting canabilities and ease-of-use are currently in the accontable range

s one of the few network administration companies with no hardware to sell, NetLahs in Los Altos, Calif in in the position of relying solely on evolving administration standards such as Simple Network Management Protocol (SNMP) and non Management Information Protocol (CMIP) to attract us-

This strategy has been successful according to the company, which states to have \$ 500 existent ers. Users said the open approach allows them to enther information more easily from beterosymeous networks and devices.

This evaluation focuses on Net-Labs/Manager Versions 2.x and 3 x A new version of the product, which is being renamed Net-Labs/Diffons, in stated for release

Evaluators for this survey included network management personnel from a retail building sup-piles company, a Washinston based owernment accecy, a computer company and a consumer manufacturing company Three were working with NetLabs/Man ager Version 2.x and one with Version 3.x (which he said was actualby NetLabs/DiMons t. xt.

The format for this evaluation was developed with Howard Rubin Associates and Technology Investmont Stratorios Corn

Reliability ranged from no failares in the case of the retailer and the computer company, to predictable weekly failures at the govern ment agency, according to the

evaluators Notl abs/Manager Vernine 2 www. tempetal to be stable

The evaluators were politing from 100 to 2500 devices including maters, bridges, workstations mainframes and a variety of communications links They said Not-Labs/Manager performed nde-Manufacturer: "It's not blister

ingly fact and it's not slow." From an administration perspec-

the. NetLabs/Manager is easy to nse the evaluators said However it offers a variety of configurable notions that initially can prove concentration throughout Retailer: "From the development standpoint, it requires more planning than some other feet-

someth more there Technical support
The evaluators agreed that technical support was more important to stalled it, it worked. It took about a

NetLahs responds

NetLabs President and Chief Executive Officer Andre Schwager responded to issues

Ease of use: We want to reoce the amount of training

Same of installation

Departur canability - 11

Tools and willbla

there were resident to the Martine Above in day-to-day use. All praised the technical competence of NetLabe technical support staff, although the government evaluator said the

staffwas 'n little small." The evaluators said installation

Blaren and since

work] managers because there is was easy. They performed initial installation in less than one day with fine-tuning completed within

ed but integrated.

Retailer "The first time I in-

and make our applications us able by mere human beings Thus, we are focusing on the people running the notwork managers and users - rather than on products. There is a need to solve problems with [network management] appli-cations that are integrated and easy to use, and to make sure

that the management plat-forms are not just interconnect-

month to end it not up."

Compatibility Netl abs/Manages was compatible with a variety of network manageent took including homegroup Unix shell scripts and existing SVMR and CMIPhound network management authors the coults

mannege und

The base reporting canabilities of Neclabs/Manager were ndcounte according to the evaluates. The experiment acrocy and manufacturer wrote supplemental pro-grams to provide custom re-

rting NetLahs also provides the Net she/Assist module to sid in report creation. Manufacturer "We generate

seeffic statistics weekly and daily reports of line outsides.

Programming

ized through C programming or Univ shell scripts, the evaluators said Allhaddone some port of cus-

Tools and ptilities

With a variety of optional modules for asset management, reporting. network mapping and other functions the needlest has no shortage of tools for their needs the earlyn

Manufacturer: "They provide nore products than I use. The Net-Labs/Manager has just about what Import

Standards support NetLabs/Manager supports network management standards

such as SNMP CMIP and Omni-Government agency: "It sup-

ports everything we asked for Alarms and alerts According to the evaluators. Net-

Labs/Manager supports a variety of costomizable alarms and alert functions, including electronic paging, electronic mail, command execution and additional polling Retailer: "It comes with 10 alerts out of the box, and you

ean combine them for specific events." Writien by Computerscorld senior edi-

tor Garry Ray.

Yes! Please send me a MapInfo Demo Disk and a free copy of MapInfo Magazine.



City :	StateZip/	Postal Code	Country		_
Phone	Fax			-	_
1 Are you a □ Reseller □ 2 For what specific applicat	ons do you (use/plan to use	Maplefo ²			
□ AVL / Tracking / GPS	☐ Customer Service	☐ Pattern Analysis	□ Sales		
	□ Facilities Management		☐ See Analysis		
□ Dispatch / Delivery	□ Marketing	□ Routing .	□ Other		_
	3-19 (20-24 (25-39 (non requirements for Mapl 140-74 75-99 100+	info?		
4 What computing environ	ments do you use?				
□ Windows □ DOS □	Macmiosh □ Sun □ HP/A	pollo 🗆 Other			_
5 What is your purchase tin	neframe?				
□ Less than 30 days □ 1	-3 Months 3-6 Months	□ 6-12 Months 🗓 Unkno	4D -		
			_		

For Faster Service Call 1-800-327-8627



BUSINESS REPLY MAIL FIRST CLASS MAIL PERMIT NO 1276 FRAMINGHAM, MA POSTAGE WILL BE PAID BY ADDRESSEE

PO Box 9345

Think

	CONTRACT	A225	127	55	40.44
	Metal's	Cultura General, Mind Re.	Altery	113-39-1	220 64 26 62
	Auto Set	DM Congress 51	200	111-2867	N.Z.W.Shier Shier (See
	Red Flerk	152 Mention and	Married .	3135-47	NOR114 (Mr. 104)
	Lemeste	19 fames Rey	Livery	159-157	16.75 (164) Street 10-8
	Saltan's Autor	Ed these from	Kley	103-4501	454 DK Set 24
	\$1.75 Millionia	C Bert in	Ser German	*55-514	9.54 (H4. Bells 2H)
	fame's	1935 Garriero Area	Altery	551-5539	454 244 346 24
	E-MAIN T	El Mancagnon Dr.	Person, and	555-1519	A 5,8 (04, 046 (04
	Sirece	Chapter Same, St. 586	artemetter)	*15-9167	MEASURE THE DIS
7	Forum's thomas.	24 C Brown Nov .	Drugger/Gue	115-4250	433 24 24 24 L
÷	(autoria	LATE SHALL TO	Alaba	554-106"	4.58 (He) \$46 (H)
	Comfre	Section Flore, R. 107	Albert	185-282.	NAME OF THE OWNER,
17	Seller Stewart	100 Time Street	5879	101-18-1	858 ING 56 IN
	Destrict Bullion	1777 National Ave	Alter	199-0209	8.58394 Sep (2)
	Nette Deck	Tr Administration of	manual -	225-015	ASPERIAL PROVIDE
	P-MC	19 Albert Street	Alary	115-1855	8,5,8 (0.6, deck 20-
	636079	45 Subsects Facile	Mariantis	125-6259	8,1,8 (04) Befr (04
	Seria Chia	910 Garnesi Ave.	Kirey	525-0175 .	3,52,224, 849,224
	Auto See 11	11th Carler Ave	Abery	**5-8796	NAME AND ADDRESS OF
20	Make State	189 Derived Ave	Name	**5-4405	51,810-0, th-0 15-
7.	Garage .	40 Street E	2569	115-8000	83339 56 31
	Between Barrer	1704 Chinese Tel	Strengthally	170-1626	A14196 5-0 (64

Making sense of the amount of data flowing into your company is like trying to drink from a fire hose. You need a better way to correlate it. To think about it. To interpret it. To visualize it. To form a comprehensive picture of what it really

Mapinfo is that better way. Because all data has one thing in common. Location. It all occurs somewhere. And when you use Mapinfo solutions to link data together by location, dynamic nictures of

what your organization really looks like begin to appear. Clear pictures of opportunities you've been missing. New insights for better, faster decisions. New ways to use data as a commercitive wearon. To clash waste.

To directly impact the bottom line in every corner of your organization. From

· Visually.



Maplafo is completely open. Use data wherever it is stored (Oracle, DB2, Sybase, Ingres, dBase, Lotus 1-2-3, Excel and many others). With our MapBasic Development Environment, you can easily integrate mapping into your clientifector applications, too.

sales and marketing to customer service, operations and planning.

Inside every fat database are a thousand beautiful ideas just trying to get out. Mapinfo is the key.





All trademarks are the property of their respective owners. Marpholo is a registered trademark of Matthelo Composition. LIK: [44] 332 824 782. Benefux: [31] (3450) 31300



What can you do with a Verse? What do you have in mind?



You ere en

unfinished book. A work in

progress. A Sewhie enough to bein you growing stack with all the pages of your of unbor life it's a carvas with a knypages; the stor hoard. A nover tool with a of eli you are, trackball It's perfect for sherand will be no ideas with people right There ere pages in front of you or uson its devoted to cond communications the things you

On annual forms assessed to

heve to do: away The artistry of its new

Edit your report. Work on your screen could well espre you

presentation. to some artistry of your own There are other While its unique, color

pages full of TouchPen" capability invites the things you ncecise annotation of like to do: Music.

ed finger-painting Art. Trevel. But (For up to 10 hours on a most are full of

single charge.) Named ideas that you'd "Best of 1993" by PC Mag like to share

azine." Versa can be a notewith the world. book a deliktop, or a tablet That you've got

Above all, its modular to shere with design lets it expand for

the world. You changing needs and new are en unfinished

technologies Because in book. And the technology as in life, thera's best pert of the a new page written every day

story is, you'll never be done.















No Fences. No Boundaries. No Limits. That's The Freedom Of CA90s.

The freedom to choose the best applications without worrying about hardware constraints.

The freedom to right-size your entire computing environment with the best mix of hardware platforms.

And the freedom to integrate and automate all your applications across the many proprietary, closed environments you face today. It's all there inside the most comprehensive architecture ever developed: CA90s.

The only architecture that supports every major hardware platform including IBM, Digital, Hewlett-Packard, Apple, Pujitsu, Bull, Data General, Tandem and Hitachi. All the major operating systems: MVS, VSE, VM, VMS, UNIX, APPLE, WINDOWS, DOS and OS/2.

And the world's broadest range of integrated software solutions, covering systems management, information management and business applications.

If you're tired of being fenced in, call 1-800 CALL CAI for complete information on

CA90s.

The architecture that can set you free.

ASSOCIATES Software superior by design.

In Depth



Baum

If you don't do a good inh of narceling out application logic among client and server nodes. expect poor scalability or terrible transaction performance. But some companies have figured out how to skin this elusive heast

for uses a distributed object are mounts toronty setting a loss one

One of the thorniest client/server development issues is that of application partitioning.

Don't yawn: Incorrectly parceling application logic among client and server nodes can have disastrous results, such as poor transaction performance, strained network resources and difficulty scaling up an application as it grows or as business needs change.

"Application partitioning is something you think about during the initial application design stage." says Joyce Young, formerly director of decision By David support systems at Helene Curtis Industries, Inc. in Chicago and now director of information

systems at Tellabs Operations. Inc. in Lisle. III. Unfortunately, as Young points out, most tools on the market today don't give you much flexibility to change the design after the application has been implemented.

What's an IS manager to do? Today, there are several -choices on how to parcel applications around (see list page 102). They range from distributed object messaging.

in which you construct applications from logical components that can be flexibly mixed and matched among client and server nodes, to a two-tiered

architecture, in which application logic resides Application partitioning, page 102

App partitioning

CONTROL ED FROM BACE 101

estinch on the elient and detahana activ. ity is controlled by relational database management systems' stored procemanagement systems stored |

In the end there are no absolutes to stude developers as they wrestle with the gande de resiper our toey arente armine ing — just a few models to follow and a

handful of packitootural midelines "Most look will allow you to partition diention "care John Bymer on an an application," says John Rymer, an an-abut at the Patricia Sevhold Group in Roston "The questions to ask yourself and how much most in receipted and bearing much flex ibility do you have over the long

RIBUTED OBJECTS Applications composed of absects that can be delicat on one sarksistion and deniesed on many different client and server mades

The U.S. Army Artificial Intellig Center in Washington is using a flexible. object-based system to bein it partition application functionality in a huge projand collect the Army Flow Model

According to Col. Bert Dollabite director at the center, this expert system has the mond took of modeling the effects of nolley decisions on the structure of the II S. Army This is no estall feat when you consider that the Army has 10,000 units. 2 800 installations, 200 000 types of conjument 1 5 million action and recome nersoanel and a multihillion dollar hud-

"We want to sho the Army chiefe the ntilities they need to perform complex What if I decide to simultaneously take \$2 million out of military construction promote people faster and resize the 6th Infantry Division in Alaska? What will

my army look like in 1997 To enable such predictions, Dollahite and his toom manded to be males and ableate Internet with the yest amounts of data currently stored on Pentagon mainframes; data that borders on a terabyte

Using the Kappa application development system from IntelliCorp. Inc. in Mountain View Calif. the Army can swap in rules sets and data sets as the annication evolves instead of having to specity atl logic and requirements up front.

Such flexible partioning is mandatory for the Army's application, which changes continually as more rules and objects are added to the system.

"We might bring up the logistics module on one machine and the personnel module unon another machine depend. ing on the processing requirements of the simulation we're performing," Dollahite says. 'In another situation, we might bring up the personnel model in four parts on four separate machines and bal ance the load across them," in this way, he comining the application load is partitioned according to the problem at hand.

Kappa also includes a network management system that helps track where

each object in save Mai Muchael Errori.

to a development who weaks worth Dollahota 'It's hardware-independent " Fatosito saw "We see the entire and the tion on one marking on an one from it

don on one machine, or we He says to change the confunction and reportition the application requires simply setting a few assignment year. obles at meeting a

CHOICE MILL TRUESED SERVER BACCO

Analyzation later careful on both client and server nodes Having applications reside on the server in a net side on the server as a marked environment gives GE Plantie Sovibility over

how it partitions database functions save Ron Giles IMBELLAND, says nonname at CE Stantin's Steam tured Products Group in ed Products Group in company uses Supiens International N.V.'s Vision ap-

ronment to create its server-based applications. "The development enviment cheater a indicat database that enables up to miv and match functions

among undoes DEMSs on various semen without changing the underlying applications. Giles says. A canability that is known as dynamic binding (sometimes referred to as

matime hindiam enables GF Plastie to immediately and the state of the state of the state of supported platform after it makes sharens without on lag through compile and link exercises for those platforms. This makes it essier to reportition DBMS

functionality among serv-Uncoming changes make it imperative for GE Plastic developers to have a flexi-

ble wayte partition applications functions and data among dissimilar types of opensoon and DEMEs

So far, Digital Equipment Corp.'s Rdb/VMS has been the workhorse for production and scheduling activities, but more and more applications will start re-

bring on Sybase, Inc. in the future, says Jon Mason, a systems engineering con-GE Plastic is planging to murrate some

client functions to Microsoft Corp.'s Windown NT operation restor and to swan the Dicital VAX 6610 server for a Digital Aloba AXP system But Giles says he thinks his environ

ment is up to the tank. He notes that applications are database-independent, storing all metadata about a database's structure in a jugical data dictionary. The company therefore, does not need to modify applications to accommodate a new server or DBMS.

LIVERED CLIENT PACES

All application latter sender on the closel BORNE stood assessment on the course has Appenditures processes

Relience Fleetric Inc 's Dodge dist. sion in Greenville, S.C., opted for twotioned partitioning in building a new production control system because it fit to with its design. That design stimulates wito its orago. That orago supulates activity according to Gary Ghery, manservice seconding to citry ducing, man-

The company uses Powersoft Corn's The company uses rowerson corp. a PowerBuster because it supports by allowing those stored procedures to be material from within DemonPuller Deta-Windows or fourth-generation Innguists

Developers worked with PowerRuilder on Windows 488 PCs accessing a Sybaso

Complete Sociality for partitioning application functions. Facy to must analization functions in other positions

Typically requires knowledge at object-oriented technology. Often rest Link environments. Sometimes mou nertition the objects among nodes

With this host of distributed architecture, the application is broken into a set of logical domains - not just one or two, as is common, but four or five or even 10, explains Ken Feming, director of technology at Encompass Systems in Cary, N.C. and needlent of Suite Software in Anaheim. Calif.

The client application itself doesn't have to worry about the location or format of the data. Fleming says: it makes a mouest of some type of messaging engine, sorting out differences in data type, networking protocols and hardwa

Logical detabase dictionary or repository enables database in

Anniestion indic apply reportitional amond various servers and server data

More difficult to implement, and some server-based tools offer less. sonhistirated GUI-building capabilities.

Two-tiered, client-based

Fany to implement, effective for dat activity if queries are constrained.

Restricted to smaller applications — about 20 people or so. Limited DBMS

John Rymer, an analyst at the Patricia Seybold Group in Boston, says most of today's popular application builders are really client-only development tools, ching PowerSoft Corp.'s PowerSuilder, Gupta Corp.'s SQL Windows and Microsoft's Visual Basic. These tools help users build mainly the pres portion of an application, forcing them to sely on a third-party relational database manager for all server activities.

Rennstron-based code generation

ed application maintenance, fast deployment, potential for reuse of ation functions

we information engineering methodologies may be overkill for simpler

In Denth: How you slice and dice it

SQL Server on a newsest-r

The advantage of the last time diseased over titioning achieve for Reliance installed better performance and loss n octics belletingsize and scanes network or does not need the SOI contay to the comand a second and the second and s

er whe Also because the system can call Asso, occasion the system can can other steam procedures and trianger make and a procedure and to go

In this way the system has lose code in this way, the system has less code overall, simplifying maintenance chores simificantly compared with Reliance's ald manufithin Cohol system for inctasise what used to require more than 2 500 lines of Cobal code now takes fewer then the lines of make

> On the horizon

> Some application development vendors, such as Forte Software in Oakland, Calif., are developing new client/server tools that will allow for dynamic partitioning. Dynamic partitioning late IS staffers create Indical applications that can be partitioned at runtime without changing the underlying code. But don't expect to see any robust tools for about five

SHORN-ANSID CODY CONFRATION encented software encourage (CES) even in which business rules and data definitions are defined desercially. Sitteen deserates and computes made for some rife class and same stationer

years, consultant hidith

Hurwitz cave

Using CASE tools, companies can pe tition and repartition applications through repository-based code generation. Once the company establishes an plication requirements in a repository. the system can generate applications for any of the deployment platforms the company authorite

Point CASP in this management attend tive to San Francisco-based Charles Schwab, Inc., which wanted to create applications that could be deployed differently depending on the available procossors in each brokerure office, explains Ken Richmond, a technical con-

The company uses the High Perfor-

manon Stutom (SERS) CASE assistance mance System (1928) CASE environment Now developers can design an entire client/sensor application on a single workstation as a single program Rich. WOT ROUSED

"Once the application is complete and tested developers can break apart the functions among designated elient and tunetions among designat

The HOC and See also. ers to designate on which platform they-

me per excusor concessors (ruses) to rust. tout can specify some rules as cuent and appropriate leader at the floor in the repository and deporates the proper repository and generates the proper

cluding the remote procedure calls for manufacting across the network Conmunicating

Developers built a new order-cottes -----deployed at an office that has a mix of 2070 templesh and the Missessies acro terminas and sun sucrosystems data stored on a maintaine comme in

The application was decimed so that the application was designed so that tions on the client and some calculations none ou the entire and some concatonion in the terms of dealth as all and

Doors to a feet bear technology and on to Vent Design to W. Direct

Finally Imaging Like It Ought To Be. Simple, Affordable, Expandable,



Introducing MI'MS' 3000EL. The first personal imaging system with high-end performance at a desistan gratem price. With more-friendly Windows," icons, nell-down means, and on-line help functions, MI'MS3000F1, makes conhisticated document management incredible ease. Just click a mouse on its tool har and you can capture and store documents, then netriese and print them with laser clarity. And do it all with virtually no training. The system's compound document architecture allows documents to be scanned or captured in native format from more Windows analystions and stored as documents in an electronic file folder

The benefits of MEMC2000EL extend well beyond your deskton. It may give you all the image management canabilities you will ever need. With it, you can deliver images across your entire network. By simply adding an Image Mail 3000 software module to most any PC, a user can request and receive images from a MI'MS 2000FT, workstation via stan-



dard E-mail programs. Should your imaging needs expand, MI'MS 3000EL is directly upgradable to the full power of Minolta's entire MI'MS 3000 electronic image management systems product line. All the data and images can be transported to



MI'MS 3000, with no need for costly reformatting, reprocessing or rescanning. If you've been hesitant about investing in an electronic image management system, don't you think it's time to consider MPMS 3000EL2 Arrange for a demon-

stration today. Call 1-800-9-MINOLTA.

DOCUMENT IMAGING SOLUTIONS

Finally, A UPS That Has It All...Reliability, Immediate Payback, And Worldwide Support.

The Only UPS
With A Cell Sever Interface
For Langer Battery Life.

The Only UPS That Can Be
Turned On And Off With Network.

Power Management Software.

The Only UPS With Reliability Backed by 150-9001

The Only UPS With Reliability Backed by 150-9001

The Only UPS With Reliability Backed by 150-9001

The Only UPS That Can Be
Turned On And Off With Network.

The Only UPS Available In Single And Three-Phase Output From 250 VA-375 kVA.

You Can Have It All:

- On-Line Technology Better Than Line-Interactive
- AS/400, LAN, Serial Interfaces Built In Front Panel Selectable
- Y. Windows GIII Faciar To Use
- Network-Ready SNMP Communications



Call for the facts and a free videotops 1-800-554-3448 x615

EXIDE ELECTRONICS
Helping You Stay In Hower'











Computer Careers

in C is a test in halance and good judge



Ry Don Burloson

IN THE EARLY DAYS, Cobol program mers were judged on how officiently their programs ran rather than on how easy the programs were to maistain Todes the same is too forth or Cond.C. . . programmery who milideauly names tight efficient code at the expense of

readability As new programmers will learn there is a natural trade-off between programmine for readability and programming for efficiency and performance. When a language was designed to be programmer-friendly, such as a fourth-renerstion innguage or Microsoft Corp.'s Visual Basie, the syntax is easy to read and the

Languages such as C. on the other hand were designed to emphasize neence and are generally much harder to decinher Efficient code is achieved by nesting - placing multiple functions into a single lige of code. Nexting reduces the a single life of code, resting reduces up affects readshility. And it is very differ-

ent from the program structure enforced be Cobol and Decorl Some programming puriets result in C's ability to recursively nest functions

doesly sected from improve the code's maintainability Lie fortunatoly the mel Caron tunastric are gone the absolute minimum amount of programming statements is at odds with the most of maintainablaanda

"Thoro is a fine line between making Coode madable and making it efficient," save Kevin Zimmerman a C4+ evpert at Lawyers Cooperative Publishing in Rachester N Y "To fully exploit the power of C, you need to he able to next functions so that such me be able to next tunctions so then you can reduce the number of variables required But declaring and using many posicities But decide my new using many variations much as next functions " Zimmormer

Corogrammers are often tought to conphysics officient especially when with ing systems software. For example, do tabase management systems contain fencions that may be called downs of times each around Pour the amallest inprogrammi becomes important to overall falabase performance. When develop inchesiones applications such as payroll or inventory systems, however, efficient code should take a backwest to maintain

Benefiting from C++

RETTER READARILITY

int faffint a, int b) {

int failet a, lot b) (

5757 Alpha Roed Dallor, TX 71360

within Autotions Come man our that No are adventor matter Cities a Cabal necessary is which and is carrfully crafted and names assisted to asmoniconnichter for exmeric variations, for exto gin giving martinl."

Instead programmers should take advantage of powerful facilities such as Co.e's enconsulation and informs tion-hiding For instance, proper use of recappulation resurre that all gods modules

are self-contained and

Change to reuse

function independently But whetener your ending style take

heart that evertually generally accepted coding styles will emerge. Until then, take stock in how readable your own rode is and remember that adding a few redundant variables has a small impact on performance and the code will be far conjecto maintain

Bud and a back a state of an art thereof Practical Application of (A) jest-oni-mated Traks is one for Keleticant (A) jest-oni-(OFT) Wiley Publishers, New York 1 He touches information endone at a lotal university



IOIN A WINNING TEAM

and Beninces Work as one of the best come stire in A cest and stowth. With over 3500 consultants nationwide we are one of the Instent growing companies of our type in the country. Our officers in Chicago Los Angeles and Dallas have multiple concentration for individuals with the following shift serv

Los Angeles: STRASE - ORACLE • DB2 CICS CORO OBJECT ORBINTED

Variables - PMO - Mary - Arrivation - Arrivation

· CASE (PREFER ADW) · CLIENT SERVER DATA CONTERS Ope Westbrook Corporate 200 Oceangere, Seille 200 Long Brack, CA 90002 (310) 456-8777 Fax (310) 590-8497 Center Suite 920, Westchester, IL (708) 563-5577 Fex (708) 562-5797

Weatteren package. For consideration or more informati ent at any of the



Positions Available Nat

Turning Technology Into Power

Florida Careers Begin With Florida's Leader In Contracting, Training and Permanent Placement.

Immediate career opportunities available for insourcing, out-site managers, project leaders, programmers, analysis, system administrators and software engineers

Smalltalk St. C. Units T. Windows, Unit Adminstr Powerbuilder, Sybase, Pachase, Oracle, SOL Forans, Oracle case tools DEZ, EDNS/ADSO, McCormack & Dodge, Horon, Teradata, CKS/Cobel

 C. Presentation Manager, 0 5/2 and C++,
MS/Windows and C++ · ASSOCIATION, ASSOCIAD, Edwards, ASSOCIATIO

* Tanden TAL Tanden CORCL/SCOROL Warm up to a Horida career. Turn to Computerpeople, Dept. 553

Tampa Bay Arca 1225 28th Storet North, Suite A Precrabate, Ft. 55716 (5-525-2526 - FAX 813-572-115) 2015 Orange Ave., Seite 1020 Orlando, 71 52601 Julio 200-9955 - Fax 607-945-6155

tacksonville Area redom Commerce Centre 175 Big Ethi Trail, Some 405 chomville, FL 32256 10-700-3945 - PAX 904-464-0290 Pt. Landerdale Area 5215 Nergino Pkny , Suite 122 Dt. Landerdale, Pt. 55552 800-777-8001 - FaX 415-489-0205

SOFTWARE ENGINEERS

A world leader in the development of advanced eventumications systems is searching for highly method of professional Software Engineers need the following or offer the software Engineers need

the bibsing qualifications are property accounts to the aminimum of 3 ware expensive writing high structured and co-volume for 15-10, 60% index control matter for 15-10, 60% index and for 15averable language.

lution has several software development projet users development, with more in the planning stages. These projets begins all requires a second user-baseding and expertise in constraint obtain-soulem design multitus softens, operating sys-tems, and exableral users interface design.

terms, and graphical user interface designs. According and emperious with the interesting are abor consistent highly should for familiarity with the fluctual CSF-of-enviropment or embreases. experience with the Machinish II development conformation contrading (1997), accordingly followed with Managong, the 1981-2167 I devia standard, explorational progressor, consistent existing software, digital hardware design, and technical serving adults, i. S. citamento is enquired.

Vetrus offers both an excellent compressational branchis nursure. Send your resume in

H MAN RESOLUCES GROUP WITHUN CONSTRUCTOR 40 West Concentral Road Construction Off. 67246





COMPUTERWORLD FEBRUARY 14, 1994

MIGRATING A DIVISION TO A NEW SOFTWARE DI ATEORM CAN BE DISERCISET BUT WIN OVER

KEY HEEDS AND YOU'VE GOT IT MADE. POLITICAL SAVVY IS ALSO A MUST.

Dy Michelle Louvenn

Solvay America, Inc. in Houston is now on its second generation of software standards fl will replace three types of office automation programs with a suite of products from a single vendor As a result, the chemical constonerste will eventually save 75% on new software \$500 on approaches and 2000 on training

print, dendry les à impo-print, dendry les à impo-sion pars, à develop à m-

well divine a many com-

Married St. Calman Sanatas Saladanas lion customs department must maken note the tech of minuting more to the new standard "In the first switch som new standard. In the first switch, some brobe mand me was or suspands so much that they brought in their own sout-Wille, Silys David Entonymanager or or

font problems memory con-Sinte and simons Often it took several days to del exercition hack to normal "

Learn to persuade Other IS professionals arree

that migrating users to a new software of atform is a skill once that definitely Interest in to tr owns The majority of 15 manager Pop. "He flagority of 10 managers , rethe skills to effectively manage this transition "anys Tori L. Coward, president of Tunment Committee Resources a PC

training and consulting firm in Fart Worth Towns The first thing to learn is how to prosent a personagive case from the usor's point of view and how to handle ob-

instings. "Even if people agree to use the prod uct, something may bannen to change their mind, and you have to sell it all over arain." says Michael Skelley, director of corporate information services at Foxbo. ro Co. in Foxboro, Mass. But if you've thoroughly evaluated the options, stick to your more "Nothing in over 100% " he

For a multinational organization like ourselves, moving to standards is a lower process," Enton says. "We had to convince management of the value of standards, then we faced 12 operation comnanies that didn't understand why then positio's use one wood exponenting peak

see they wanted " In many once colormonchin is not

"You need to work the coviers to said the need to work the system to get things door, says many react, manager of technical training of the Redornt Reor urminess training in the recers for your skills, which the most politicians in and a company. They're the only white company. They retail the

To some the building of minut to easy use managed or military want to consult your marketing department That's what Hears Marchianda did From this collabora-

MECCULARUSE GIG. From the collaboration technology at Colema, Palmoline Co. in New York developed the idea for a in New 100% Correspond to introduce an electronic mail system into the compam's 60 worldwide subsidiaries, the name oblet etwining how to fix nephlome in the poset expanses now to mx promems in the

Dat namedless of her assessed as are or what marketing tools you have. not everyone will be won over. "You have to forus on key clients." Faton says

When you got a critical many of supply using the product, it's never pressure for ments me broad

To get the first group of poorle to an To get the area group of people to ac-

DOMes them some females file to be a training or lower support costs. But he training or lower support costs. But be otherwise you Il discover own grove "Faionessy

Lournage is a franchism walter in Vine York

SMOOTHING THE CONVERSION



VERY BEST

rématonal Sero

incated in Maples, Florida, one of the Gulfmach's most

We are looking for the very BEST C and C++ Programmers to do

HLFRS and

owner to Lovie So 457) Mercambileo, Saries II 1850

Staff Associate Network Administrator

nds to teep up term comen, according and maintening server hardware, wrong of software and ansuring multi-platform functionally in DOS, Windows, Maconisph and LIMAX useff eventually oversize the Collegia telementurications system. You must have a BS in occumulations or En to in a 900 a vision companies or an Know



Cities of Fortune

If you're leoking for a great place to week, you can't do better than CTG. Not enly are we one of the nation's largest integrated professional software services and constant technology consulting forms, we also form openings in most of <u>Fortage</u> magazine's Top Ten Cities for Knowledge Warkers, All sold, we have fit affices in Towns trict and count amone our clients. R5 of the Fortune 100.

tembrile for our of our current nationards countings for Apprisor out of our current assumance openings for Programmer Analysis, Systems Programmers, Suffix Engineero/Consultants, Telecommunications/Databa Specialists and Eerhoical Telemerketure. Technical

APS. AS400, C., C++, CICS, Client/Server, COBOL, CSP. DR2, DL3, IDMS, IMS, IMS DR/DC, Interfed, JESJ, JESJ, Model 201, MVS, Novell CNE, Oracle, DS/2 erbuilder, REXX, RPG3, SAP, 5MS, sellware ing, SQL, Sybonc, UNIX, VAX, VMS, VAXAT/RDB

See how formine can lover you. Send your re-CTG, 800 Delaware Ave., Dept. 180CW0214; Bullialo, NY 14209 Or FAX on 716/88/2-7436 Front Channel We get not no employment gorner



IT'S FRFF... **AND IT'S RIGHT** ON THE MONEY

nicture of professional employment consider the pressing issues of salary data is important.

But or a manager was also paid to benefits, training, turnover and managing costs through strategic staffing.

You'll appreciate the 1994 SALARY GUIDE from the Robert Half* and Accountement organization that offers a comprehensive view of the nationwide current salary levels in Accounting, Finance, Banking and Information Systems key positions The Guide also includes useful information on revitalizing your staff after the recession, and EVNANCE nursping innovative staffing

To obtain this FREE SALARY GUIDE, call your local Robert Half and Accountemps office

ROBERT

An Equal Opportunity Employer

accountemps

CISCORD

meet in regional or notransl editions of Computerworld's puter Careers section. For more information coll Lsa McGrath 800-343-6474

Recruit The Best!

Place your advertise-

CMALL TALK

Charlette M.C.

800.249.7289 (704) 827-8687

Computerworld

recruitment advertising works!

Midwest



THE ON - ADD 10000-000

Attention: Managers

When you campare costs and the peo-ple reached, Computerworld is the best newspaper for recruiting qualified profes computer sionals. Place you advertisements dayi

· Call tall-free 800-343-6474

NOT DALLEY SON. TOP LANK THE DAL TOP LANK THE DAL

MIST SPLED OPPORTESTINS

at the size and Mills has TOTAL COMMENT

Santama Analust Department. Bachelons Degree or Computer Information Socience on Communic or technical school Manual use door ---.... many or Phone Systems Analysis and Design in a chiest known

or information at the last Crast Manager of the

Administration Mateman 2 year or decayer design and inco degree or .

The maki-state company offers computing company If you would like to be a member of you trans elegan regard by indicating in wh

> Kanti Returns gs Books, Masse & Video, Inc. Amerillo, TX 79120 506

WE GET RESULTS The state of the s

Date Arment Region Higher Toron' Case Oranto San 1911

ASSOCIATE VICE CHANCELLOR FOR PLANNING AND

The City Colleges of Occopy. Office of Federal and Administration, writes applications for the position of Austropia Fed Very Caller for Federal and Management Systems. The audited countries all dract operational planning for the Cry Colleges of Orago including budges planning and progress for some of the process of the pro

SOUTHEAST

Computer Consulting Group Cre-Monches Situative: Courses SC 25006 1-409-255-1773 - FAX (400-539-3339

Computer Careers

Midwest











J-CONNECTION 1-813-791-0101 1-703-379-0553 fetre DC Arra (8-1-7

Use your PC &

Perm & Contract

com Bank » Foliphiji huvestmeetin » Pirst Chrospo » Florida Power 5 « GE Consulting» (GLAXO » GTE » Gallo Winnor » Garther Group » Amorpasce » HBO » Harris » Hayes Minzacomputer » Hodrick 5 « HI » Knowline » Holdrigh jine » Piyati Technical Center « IBM » invariance Buseness Syssems » Integraph » Interview in Internit » — « Personnente » Kempel » Knowledgewate » Legoni a the course of the second interestings a Maybelline of the course of th ** Section Merchanding & Section S. Skinon Graphyc.* SOlf-com Control Section Section

* Home * rejud * Johnson Controls * Kaiser Permanente * Keone *

Electrical For Comment & Birt Tath Unreview # Birth of America # Barrioth Technologies # Birt San Properties # Birth Office # Birt San Properties # Birth Office # Birth Of Children - Christian F. Children - Coop - Co

* Marry + Mayos MicroComputer + Neidrick & Struggles + Newlett

DOPLITY INVESTMENTS

Looking for qualified computer professionals?

Look no further. More than one half mil-lion computer professionals read Comput-enword every week. And you can mach all of them — or just the ones in your mation -with a regional or national recruitment advertisement in con

For more information, call Lisa McGrath at or call your local sales office listed helow-

CLIENT/SERVER DEVELOPMENT

DSC is Ning for long term projects now! Development expenence and a complement of several technologies halow in diselected, UNIX, POWERSUIDER, and SYSASE





An Unprecedented Commitment To nnlied Technology. to Edding terror second matched has sould be patrious data. Eldalias is committed to fundame technologies from the world's leading commanus

then intended them into our oven spriloums,

Within our Boston development organization, we work to define business mitiatives seinch for leading-edge solutions, then ensumize and interests the technology to take our business to levels beyond our competition's. Whether we are exploring new image processing of voice syare exploring new image processing or voice sys-tems, or defining innovative methods to store and

the industry in applied technology Fidelity loyestments is the largest privately

held financial services openitation in the country with poets under management exceeding \$200 billion. We are confident and cuccessful. If you desire to explore the future of applied technology, invest your time in Fidelity It could be the amortest investment you've ever made

	RENTLY EXIST IN THE
Softwere Application Developers (CIC++) for PC-based Systems	Object Oriented Analysis & Design
MS Windows/Windows NT Development	Network Management Architecture
· Client/Server/Connectivity Architecture	Interactive Customer Technologies
Human Interface Designers/Usability Testing	Systems or Application Technical Architecture
Graphical User Interface Development	Electronic Customer Identification (PIN) Architecture

RELEVANT TECHNICAL SKILLS

MMEDIATE AND CONFIDENTIAL

We're interviewing NOW, So, if you have the skills and ambition to work with the best technologies and developers in the country matl or fax your resume to:

INDOWS (NT) IINIXE C C

DICK McGINNIS, DEPT. CW-F2. C/O FIDELITY INVESTMENTS 82 DEVONSHIPE STREET MAIL ZONE POR BOSTON MA 02109 FAX: (617) 772-4398

... OOA/OOD, RDBMS, TCP/IP In keeping with our unprecedented commitment to applied technology. Eydelity offers outstanding medical and dental care options, work and family resource referral programs, a 100% matched 401(k) plan, as well as pension and profit sharing plans that are company-paid.

A FULL RELOCATION PACKAGE



Fideliny Insestments is an equal opportunity employer





Above The Rest...

To each the top, a takes leader-by, transverk, and long-term focus. Gost Phains Software has applied this philosophy in designing superiors accounting software products and providing improvedented constitute servare autors the country. We contently have challenging opportunities for designs, enthulassatic contensitie rendessorable search to read whithin a dynamic, embusqueix cor

youth section of the process of the discipring that A Computer North, CD of Nothware Engineering degree is injured Expension in MN-Rindows & Macanish (GT) application programming, them were C.C.++, Normodi C. Think C. Refuel C. distribute dissant and propert management is a defined this.

Deinig prelim reclude sechnical support design apart and testing of hardware software for CN based GPI accessing application. Bequires stonig UNX background, excellent interpresent, communication and personne software software partners with leading of the final expension of the software of the final software software of the final software software of the final software software for the final software soft To entire the state of the stat

Your 34 years of professional SQA experience on commercial software development and proven process knowledge to grooker defect-free software will be newarded. Technical capabilities are released for these collections.

Fechalical Writer: As a technical writer with 39 years expensive with complex withware products, you will be decumenting at advanced GPI wifes are development product for a technical andreas: A degree or Communication or a polential field to reconsel Programment in function for a field or form.

In exchange for a BS, degree, you will empty a comprehensive rather, and hereful package without thriving community meed of out of the top 500 places to lave by Money Magazine For condectation, places fair or sed at resulter adulting appoint or distores in Forat Plans Soliton, Haman Resources - GW, P.O., Box 9799, Farge, ND 96109 Fax CP012 201-5000 Internet would-ofference. New December Socialises.



One of the *100 Best Companies to mark for an America



responded to the

has responded to I race in the Worters and Scatherstern U.S. to not more and downless their fall time payed by expect ing our leading orige technology services. PPLCDXX and UNIVEX. This proofs residen to to have in the treamendate proofs only avoid with a subreally encoured perfect each con-pany. Our fall time downless arguments ma-pure. Our fall time downless arguments are payed to the contract of the payer American Sortho-ne virsually in your own healtyset.

- TELEPHONY

· PAIRWAI

- FOCUS

are versully in your now lackness.

After with the rapper of 28 Direct Offices from
come to come and now 24 years of experience in the thereby of a company
come to come and now 24 years of experience in the thereby of a company
come to come and possible. With come takes exceeding \$1200 million, and one constantly
conclude taking and electation opportunities. Consquere Hestionia has
taude the Southwestern environment an enhillment paire for experience,
conductants. To proteine and with the similar to price and province
conductants. To protein and after the similar to price and province. Functional is provided and the following skills is required - DB2/CICS

IMS DB/DC . POWERBUILDER INIS DO D . 10* · CHENTSERVER OOA/OOD SAS · INTEGRAL SA N-XTSTEE ADABAS NATI PAI

To find our rowe shout our current and future opportunities and the fluoristical and professional advantages including short arrange satiests and benefits such as training, medical/dental/file (DHO) and indentally plant) and dis-ability invariate, a relateral income swing plan (10%), entire reinstruments and relevanton assistance_call/files or forward your resure to: Ed Freccilla, Regional Disection of Recenting Computer Hesicians Copp., 3200 East Come/Buck Road, Soirt 369, Phoenia, AZ 55018, Cell: (602) 954–9555 ** Taill Free; 1 800-554-7530 er FAX (1602)

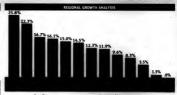


CAREER SURVEY: Communications Systems Software

OVERALL GROWTH RATE 0.0%

INDUSTRY HIRING TRENDS

® Cedwidth 100%, Corporate Technology information Services, Inc., Wolsen, Moss.



CORPTECH, A DIRECTORY PUBLISHER IN WOBURN, MASS., TRACKS THE COUNTRY'S 35,000 TECHNOLOGY MANUFACTURERS. THIS SURVEY RELATES TO THE TRACKED FIRMS WITH FEWER THAN 1,000 EMPLOYEES.

CONSULTING

Contract Solutions is offering long-term consulting accounts rise development the United States, Most position

- pay between \$300,000-\$130,000 per year.
- AS/400 PROGRAMMERS, COROL OR ROR
 UNIX/OSF 1 INTERNALS. C. PORTING
- SYSTEMS ADMINISTRATORS: SQUARS, VMS, UNIT
- WINDOWS NT • HMY HIS PINSY. I 25 TOPAP SAL FROM HIS
- INS, TELOW, COROL II
 68200, COR (++, REAL TIME FAMESTATION
- VISUAL BASIC MS ACCESS, APPLICATIONS
 ROBMS, ORACLE, SYBASE, INFORMER, ROB
- + CHIP, IMP, OSI STANDARDS, SOLARIS OR UNIT
- ORACLE, FORMS, UNIX, CAPPLICATIONS
 CYPACE DOWNSHIND DEP. COR.Co.



INFORMATION SYSTEMS PROFESSIONALS

Checkfree corporation is the country's leader in the electronic transfer of funds and other atwrited services for business partners such as masterCard and Computarive as well as for over 100,000 contentrees. Our man

Checkine is rapidly expending and seeks professionals with 8-10 years experience in mustplatform environments. Maintaines 6M/S and CD-SOL, VAX, and PCI and the communications that interconnect them. High Energy individuals and want to lead an emerging industry and are experenced in all facets of the software this cycle (Juselmont).

A progressive growth company, we offer attach by a planes and benefits that include 401(4) retirement, profit sharing, and a simple-free enuronment. For consideration, please direct your in sums, with sidary requirements to: Checkfree Corporation, P.O. Box 2437, Columbus, OH 27118-EGB Marchine.



4 Once 6.0 and 7.0, CASE, Francisco, SEA's, dev. 4 Software Testing, MS-TEST professed 4 Software Testing, MS-TEST professed 4 Software Testing, MS-TEST professed Consulting Sales or Recruiting

> FD 51 Arc. Wayne Crara 2451 12244 Avs. MI Resident, WA 5003-6517 2049 801-8005 Fac (204) 803-2401

CHIEF OPERATING OFFICER

Systems Integration Project

India

Attractive International

A leading hi-tech group with interests in computer related hardware software education, peripherally wishes to expand its greamen is notive projects from its present is software projects from its present base of USD'50 million out of Group revenue of USD 200 million. The group includes NIIT, PLC Hewlett Packard Limited and HCL America. It has identified Systems Integration projects as an activity which best synergies the strengths of India's software capabilities and its own in the Asian market place. A new Company is being formed to implement the plan.

The job will involve identifying Systems Integration opportunities in Application segments such as Francial Services. Telecommunications and Manufacturing. HeShe must have the ability to create new business opportunities and ensure that major Systems integration projects are profitable and completed on time. The incumbent should have a vision to make this opportunity into reality; heshes should have adaptability to changing global scenarios, technologies and should have the courage to buildcreate something new, including a team of high quality professionals.

A high profile software professional is being sought who will have, say: 10-15 years' experience in a major System Integration company, of which some time – 5 years – would be in Systems Integration and General Management. Work experience in the US/Europe will be particularly relevant.

Another attraction, apart from the job, is of course living in India, which should also appeal to non-Indians because of the International scale salary package. The package includes substantial performance based bonuses and equity options.

Please write (Ref: MS/6424) in confidence to:

A. F. Ferguson Associates
Express Towers, Nariman Point
Bombay 400 021.

SOFTWARE
OPPORTUNITIES

For the property of th

This Space for Hire

Call today to place your recruitment advertisement.

800-343-6474 (in MA, 508/879-0700)



hile in perotiations with Oraele Com 's consulting group Robert Cooks waited until the last minute to put his zingers on the table Cooks director of on systems at Domeco Import ers Inc. a lleger importing business in Old Greenwich, Coan, was buying a

\$500 000 financial anthware package 'I stat very close to signing the contract and then said. Well there are three things I want you to do for me.

Cooke handed over soft costs such as maintenance training and nost-sale consulting and got deals in each. He cut reases from \$50,000 a year in \$22,000 a year for three years. He got 30 days of free training and a 30% discount on Oracle's consulting rate for the first three months. "We seved about \$200,000 in service costs altogether." Cooke says.

Dancing with VARs Soft costs are probably the best place to

look for hermine when negotiating with value-added resellers (VAR) and consulting companies. While successful banding is no science, some things al-

One of the best ways to get a VAR or consulting company to reduce a hid is to dancie the chance for more work "Referrais are the most valuable thing far us." says Andy Denenberg, president of Denmac Systems, Inc., a network integrator in Northbrook, III. "If customers are in a trade association or user group, it's a

Post-cale services also provide one tunities for cost-cutting ereativity. Instend of posing 10% to 20% of the cyntom's pains for a maintanance contract and waying specifier in the money at year's end, suggest an alternate plan. For example Concept Information

Systems a client/server VAR offers an arrangement in which customers buy support credits to anniv in training or do. velocement if support or maintenance is not readed Concept will even roll over the credits

from year to year "That way you don't feel as if you just lost that money " says Robert Landadio Concent union money. er in Stamford, Conn. IS enstances should even consider

taking precautionary measures, especially on elientherser projects which are potorious for taking longer and costing more than expected. Short-turn male for example can

ontrol projects. "Have some deliverahies that dan't take 18 months to two years " save Broom Freezed second vice. president of IS, individual incurance at Allmerica Financial in Worcester, Mass. "If you wait too long, the husiness need

Also, add a clause to the contract that possings the intermeter to your according if a project does not meet hadest or time expectations. "The penalty should be sufficiently strong that it hurts," says Richard Finkelstein, president of Links Technology Corn. a client/server coo. sulting and development firm in Chicago

The think in a montaneous intermeters in The thinking among some mitty courses that come the customer starts spending money he's branned And often three neeindex on any part budget become the peers go way over outget

Cooke also surrests adding a backout risuse that left you cancel the contract and and your money back if you are not and get your money once it you are not extended ofter a specified period of time.

Dalastit consoli

You may even consider handling come of the project vourself. Some integrators especially large consulting firms open ato in a "rowamid" atmotion in which the mustomer hires programmers, project managing and a partner "If you can toservice the programmers yourself, you can avoid this and save a lot of money." Cooke says, "But you really have to peentiate, that because they're usually system to diving it up."

It's also a good idea to get some ex tion. "The \$20,000 that we spent educatine ourselves let us manage our project and once breadereds of the second of dal lars - Cooke yavy. For example, he saw he knew enough to reject a bid that included on \$80,000 line item for "stress. testing" software



I want in a face hance welfer in few dates With

· Brack a cored. Housing below projects and in E la crafic start mis

- or, fait the Shower price for your 18 years and proce for free A Project would be in an hard-out and would also

r procede consulting and probabyting unless It's absolutely no or first hig came from one fire host, Many pay that hide with

The Perfect Back-Up For An Ispertoc, World



VALITE

CP/IP for Windows

Applications
TELEST (VT)SE, VT251, TN276, FTF, TFTF, SMTPMed, New Bondon

PCP, SIGHT Flog, Red, Floger, Whose, Stateston, and Codeses Developer Texts:
Violence Sector AFI, Bertarby 42 Sector AFI, ONC AFICTER, KluSNAP AF

NETMANAGE (408) 973-7171

Demosey: Where IRM' Quality le Second Natural

- ps/ennn
 - . AS/400
 - EC/0000
 - PS/2 VP & IND PC and morel

Demosev DIJCINIECE CVETEME

Sales & Pantale · Processors • Perinherals

· Upgrades

TRM

- Danton of motors of Mile Vilee
- Flortmoir Equipment . Rest prices paid for 2001/02/04 4201 evetame
- Denferment denotalistion & removal of computer equipment Cable deinstallation from computer room Boors

Purrhice of evrees inventories nimult bearing of

REST SERVICE in the business

If Outsourcing is your objective...

You can maximize your information technology investment by outcourcing part - or all - of your IS operation. Whather it's a transitional or long-term total services partnership. American Software's the right place to rightsize.

Even software developers enjoy the cost and time-saving henefits of outcourring with us. Call today and we'll tell you why



The Outsourcing Group

Most Vendors have well-equipped data centers...

They have large systems with the softscire you need, plenty of MIPS, and

Only one runs your work as its own. > Only one minimizes your risk and

maximizer ware cash flow > Only one will get the job done totally CSC CommuSource - dedicated to

outsourcing since 1980. You're in control when you put us

IN CONTROL

CSC CompuSource

110 MacKenne Drive Cary, North Carolina 27511

919.481.9341 MVS/FSA

COMPUTING Extensive Software Library Telénet Tymnet Searanet IBM Information Network

Extraordinary Customer Service

708-574-363F

ame, address and check or money order to COMPUTERWOOLD

COMPLITEDWORLD'S "5th Wmve" Cartage Mauca Pad COMPUTERWOOLD brings humor to a

mouse pad featuring a cartoon from "The 5th Ways" sones by Rich Tennant Not available in stores this colorful foam-backed pad will keep your mouse clean and protect you'r desiston Best of all, it's only \$4.99*. Send

P.O. Roy 9171 Framingham MA 01701 Attn: Product Bulfillmont For credit card orders, call 1-800-343-6474 To U.S. for each unit critised, and \$1.25 for postage and handling, orders contribe U.S. and \$0.50 and

COMPLITERWORLD Marketplace

streeding your ad barlers with our charter mass' boar Co

one 800/343-6474 or 508/879-0700, ext 744

COMPUTERWORLD FEBRUARY 14, 1994 115

System Unersales

III TRA- FAST I/O SYSTEM

- SCSI BUS ACCELERATOR

 Ouadruples I/O and System Performance
- Quadruptes 110 and System Performance
 Colid State Like Disk Performance
- Works with any SCSI based hardware.
- Works with any SCSI based hardware
 Solid State like Disk Performance
- System independent allowing interchangeability

OFM TINE

16171 938-5042

Pre-Owned Data Center Support 5





Call us for your 9370/9221 nee

Executive Infosource
Offering full service technical support.

(1) 1 1 1 For 708 215-995

motor Bld 708 215-9370

Bright color. Bright price.

The BOXLIGHT 1280 ColorShow Special.



The BOXLIGHT 1280
True Color Projection
Panel, At \$300 off, it's an
unbeatable value.

Brightest muser

Compact & portable

PC & Mac

ER FF remore & rable

BOULGHT: Your direct source for all principles of the bright answers.

BOULGHT: Your direct source for all the bright answers.

BOULGHT: Your direct source for all the bright answers.

BOULGHT: Your direct source for all the principles of the bright answers.

BOULGHT: Your direct source for all the principles of the bright answers.

BOULGHT: When the principles of the bright answers and supparts you give the bright answers.

BOULGHT:

Outsourcing / Time

AALICOMP, INC.

Outsourcing Timesharing

VM, MVS, VSE Remote and On Site Two State of the Art Locations:

20,000 sq. ft. Manhattan complex 105,000 sq. ft. Secaucus, NJ complex

"Our Platform is Excellence"
Serving Clients Since 1980

(212) 886-3600 • (800) 274-5556

Let a company with 26 years of experience help you make the right outsourcing decisions!
We are a nationwide consultant who will guide your assessment,

and vendor selection.
We support ALL platforms.
Call Don Seiden at:

COMPUTER RESERVES, INC. 800 882-0988 (201) 882-9700

Got Instant Access to - Computerworld Introducing CW Online

Computerworld introduces CW College a computer world indoduces CM Online, a Computerworld articles, With CW Online, you can search the three most recent years of Computerworld issues. And the service is updated weekly, so you can access new information every week Research has never been ro early to complete or so economical Butht from your personal computer

The Online startup kit costs just \$25.00 and includes everything you need to start using CW Online including easy-to-use communications software. After that, you'll be charged for access time alone with a \$5.00 monthly account service fee. You can even set your account up for us to. bill your credit card or invoice your company on a months been

Call today to enter your subscription to CW Online and to receive your CW Online startum kit with valuable communication enforces

Electronic access to a library of Computerworld articles Formore information onto order call 800.643.4668 today

Successful Advertisers Have One Important Thing in Common: Computerworld Marketplace

"...We experience a higher rate of closure with leads generated by Computerworld Marketplace than with leads from any other source"

"... Proven results are our first and foremost reason for advertising in Computerworld Marketplace Every week."

David Rousso President

COMMERCIALITY **Jarketplace**

1-800-343-6474, ext 744

PROCESSING AUTHORITY unid proposals will be received by IPA, 361 N. Lamar St., 361 Blog are 555 jersens ASS 30301 for the

Sales Sid. accesses. MS Sideol vin the following:

1 20 F M, the the accession of the 3 20 F M, the the accession or misplementation of a fail accesses of the sales accesses without a postern and an adoption of the access of t hardware and coffesion to approve the existing Editor become Library Management System for leS Pasin Fase Community Cologo SSD Charge 83P 2557 day Tumbey Merch 3 1954 6 3 30 P.M. For the acquaistion of 48555, 48555 and lattops to re-emb-cine a rescongregater standard day the MS Department of Transportation SSD Conservations of Conservation SSD Conservations of Conservation SSD Conservations of Conservation Conservation SSD Conservations of Conservation Conservatio

Charge SEP 2658 due Tuesday, March 6, 1994 6-3-30 P M for the acquirellon of aphaement parts used in the wante-nance of existing microcomputers for the MS Department of Transportation 30 P M for the adquisition of scomputer software and micra-uter penginerals to upgrade con-micracomputers to: the MS riment of Transportation \$10

Dispariment of Transparamonn a-w Charge.

8FF 2589 due Twedby, March R. 1954

6F 2589 due Twedby, March R. 1954

Services 166 Charge.

Fee no change 6FFF call (1951) 258–2504

Fee Riff in with a charge 8 writter

required 166 will accept a conjection

required 166 will accept a conjection

french or a MS busic, certified credit or

SALEI CHEAPI USEDI LOW MILESI LIGE MEWI .. MY MEDGER CREATER GROUPTHINTY DE THE REPARCI Detagrahia XI.-500 Dry Phocesser with Autofeed in Dictamester II Visecula Deplicator with 200 bin Autorial College Machine is configured for direct char-nel attachment wa BUSTAC Unit has been fully maintained by Angoing size

VI 500 F----Ostamester Speed - 2000 Copies per hour Colleges nations include the Fade and Coll Davis State Consumber

DENSTALLED, BOXED, READY TO SHIP ENOWETH (913) 521-8065, UMB COMMERCIAL NA ANY MININESOTTA AVE. BANSAS CITY, NS 56101

Used Equipment Listing

Motorola is selling... TANDEM CYCLONE SYS-

TEMS incl 4 Processors 32MB on, cabinets, betteries nower I/O incl Comm. Cntir, 4-line Sync w/RS-232 w/V 35 16-line Async and more. 2 Systems for sale available in Chicago and Arlington, VA.

Call Dick Kampa al

The New York City Pier Information Services Age for Date, Processing Pl vires (proposals due blanch 3). H. 2:Olym). Requests fo coroni may be obtained by oling lanet Zeriti et (212) 206-216. Purther details regarding the 16. Further details regarding to ecifications may be freed with or will be held on



3. 1994 at 11-00em



Search over 25,000 articles in 30 seconds from your desktop

COMPUTERWORLD, the weekly newspaper for information systems now brings you a valuable resource tool - COMPUTERWORLD on CD. With over 4 years of full text articles, you can use it to:

- . Search comprehensive product and vendor information quickly
 - Follow critical technology trends.
 - · Execute key word searches on any topic in seconds
- · Eliminate mass paper storage. Updated on a quarterly basis, a one year subscription is just \$295. COMPUTER-

WORLD on CD operates on a PC (DOS and OS/2) Mac Windows and Sony Multimedia CD-ROM player environments

To subscribe call: (800) 285-3821 COMPUTERWORLD The Newsamar of IS

CompuSoire Associates Short Fries. MJ (800) 847-8583 ACCTG SOFTWARE /SERVICES

Management Information Consulting, Inc. OPEN SYSTEMS® Accounting Software
Open Systems Heidrox Com., (600) 326-2276

ADDITIONS DEVELOPMENT CompuSeive Associates PCILAN Database Application Development Impact Solutions, Inc., PC or Mac, Nationwide

Information Technologies, Inc. (77) (800) 200-0000 Micro Feeus COBOL/CICS/IDB

(313) 808,3090 Data Paradox Windows Programming

CADI INO CEDVICES Nationwase, 250+ Local Service Locations

Information Technologica, Inc. (TT) (200) 200-000 HertLinks Technology, Inc.:CORBA OCAD, C++, ellent/server ages ... (603) 691-4177

overlopment available. For more information, contact us at 400 Permeter Center Terrico. Suite 900, Atlanta, GA 30346, Fax. (404) 804-6445

(212) 229, 229

(202) 359-0007

CONSULTANTS ACM & EF & Powerbuilder Analyses & Design Bridging Committee (404) 933-9992

CONTRACT PROGRAMMING RFORMEX/ORACLE/SYBASE/UNIX ACJ & Associates (900) 264-8881

Oracle C Cobol Unix Forte CO - U.S. Consultants Information Technologists, Inc. (TT) Client Server, Applications & G.

AS/400, RISC 4000, SERIES 1 (214) 215-W2 Micro Focus COBOL/CICS/ICE Skeditore Systems, Inc. NY (212) 786-4079 Software Sourcing Company Attents General (404) 896 7900

SYNTEL, INC. (313) 829-3290

CORRODATE COVERNMENT BRS Summe Software Services, Inc.

MODESCHIM /PONCS DI ATENDM Adengare & Associate Consulting Inc

DATA CONVEDENT

een 001 0071 DOME

Advanced Data Management (800) 942-4317 Decement Call Model Tale to the Administration the hore WAR and Data programs available Call from 15

Computative Associates

DISASTED DECOVERY

CHICOR Intere (312) 322-0160 on Attracted

cody Planning Made Easy PC software took
de network, data contine and business un

rang. Includes complete mathematics. where the contract of business and ming faculate compare methodology to the movement recovery planning concepts and some designers for easy planning lab.

DISTRIBUTED OBJECT COMPLITING

Natures Technology, Inc. COFBA (ICAD). DOCUMENTATION

Eden Communications, Inc. Name York, NY (212) 489-2450 **EDUCATION & TRAINING**

15 Training Services (500) 635-6616 Specialing in services and reministrate having solucommency in territorial and men-inchment framing con-trolling and following consulting numbers designed to support the under 50 functions—collecting the claims of 5 65—point of supportunistic Control State of 5 females and 5 Confederate Large, Action, 4th 6107576

Skill Dynamics, An ISM Company A Ul strice trang corpus; the species is sent-ol and burner trans, consider, executory and extensed others; Cd 1925 SA SEACH or a his

Information Technologists, Inc. (TT) (800) 200-40

LEARN C++ ONLINE: results of Equipment

LAKEVEW TECHNOLOGY NC. hethuctor led AS 400 education
MBS Triuming Institute
Audit & Security Fr

Sybese, SQL Server Training Larson Software (800) 394 7966 NRT - Training Division (404) 804-4444 Developers of custom Computer Based Taming (CBT), Mullimeda, and Performance Support Systems. Development sits is 50-5001 certified from more informa-tion, contact us at 400 Permiser Central Tamacs Sules 900, Atlanta, QA 30346, Fax (404) 804-64.

Object Oriented Preparation Services, Inc. ELECTRONIC DATA INTERCUANCE Impact infil Technologies, inc.

EVERTIME INFORMATION EVERTIME 731 61 PRO 2000

EAY,ON,DEMAND

DISCOVER THE POWER OF FAX-ON-DEMAND NO.57% (SMC) NO.57% (ON BY HAX ABY HOW DOCUMENT 210

> ENCHIE FOCAL SYSTEMS, INC. Focus Consulting GEOGRAPHIC INFORMATION SYSTEMS

> Caliper Corporation Newton, MA . . . (617) 527-4700 OUT /MI INICIPALITIES

MAA Consulting Group, Inc. COCHO WADE /E-MAII

Information Technologists, Inc. (ITT) (800) 256-46 HUMAN RESOURCE SOFTWARE SPECTRUM Human Resource Systems Corporation

HUMAN RESOURCE SYSTEMS oridian Employer Services

IMACINO Document Mgt, Workflow for AS/400 Acknowledge Inc. d800/533-1776 ISO 9000 Doc Mgmt. Systems CIAKO Corporation . . (410) 224-3314

MANUFACTURING SOFTWARE RO Systems, Inc. MANAGE 2000 Product Minnespois, MN 55426 (800) 544-7849 Irespd Software, Inc. Burington, MA (\$17) 273-2920 PowerCerv (PowerBuilderSybase application) Tampa, FL #13i 226-2378 Silverine Industries, Inc. Owbrook, E. (DRACLE VAR) . (70th 571-5666

MADEFTING INCODMATION SYSTEMS Advanced Marketing Solutions, Inc. MICROFILM/FICHE REPLACEMENT

COLD, Direct Attach for AS/400 Acknowledge inc (800) 533-1776

NEWTON CONSULTING Avaion Engineering (617) 247-7668 Custom Newton Products and Solutions

OBJECT ORIENTED DEV OOA/OOD/Forte trained OO Development I.S. Consultants /612/851/9544 SYNTEL, Inc. NATIONWIDE ...(313) 828-3290 R Systems, Inc., California (916) 831-1503 "Quality Schools Developed in Inde" SAVE 95511

Software Sourcing Company Atlanta, Georgia 1404: 856-7900

NEE SITE SOSTWARS DEVELOPMENT Computer Utilization Services Corp. ORACLENFORMICS/BASEUNFACE Mubriedo appris

OF /2 CRECIALISTS SOFTWORLD'S Corporation (407) 995-8436

OUTSOUDCING Advanced Data Management (800) 824-3772
A hall service system integrator. Design Brough inplementation, all major destinates and tech. Call

OUTSOURCING/REMOTE COMPUTING
Let a company with 26 years of experience
help you make the right outsourcing decisonal. We are a nationwide occinentaril. stons! We are a retronwide coonsultant who will guide your assessment and ven-Distriction for SESSERVES, DIC. (100) 812-0988

MCRB Service Bureau, Inc. (212) 926-2200 DAVDOLI EVETEME

Coridian Employer Services SPECTRUM Human Resource Systems Corporation DROJECT MANAGEMENT

Pleagonsky Consulting/Training PURCHASING SOFTWARF Commerce Software. Inc. (PurchaseSQL9) OPIN PURCHASING WANAGEMENT SYSTEM Dynamic Software, Green, SC (800) 627-1218

RETAIL SYSTEMS (214) 215-1837

RIGHTSIZING PC/LAN Database Application Development Envision Development (506) 443-0829 MCRB Service Bureau, Inc. 3090 Computer (800) 941-MCRB SALES FORCE AUTOMATION

Schemer Resources, Inc. (Seles Ally Software)
Philadelphia, PA 19118. (800) 950-0190 CECHDITY JANUS Software (800) TO JANUS MVS Security Audit Shw 6 Info Security Cons RSH Consulting, Inc. (617) 969-9050

(914) 425-7750 VANGUARD Integrity Professionals SECURITY /PHYSICAL

Z-Lock Manufacturing Co Restands Reach, CA 90277 ...(310) 372-4842 SOFTWARE INTERNATIONALIZATION International Systems Design, Inc.

SPEECH INTEGRATION Zetech, Inc. (203) 959,980 SUPPLY CHAIN MANAGEMENT American Software, Inc. Atlanta, GA (404) 254-5296

WINDOWS NT

Have you developed a heads up custom application for Windows? Then enter it in the third annual Windows' World Open. You could walk away with crystal-clear proof of your incentity. Plus gain the respect of your organization and the admiration of your peers. Meet industry luminaries face to face. And be featured in Computerworld.

> If your custom solution (not for recally) makes it to the fourt, you'll demo it on the slow foor at World May 23-26, 1994. We'll arrange for shipping the necessary equipment to the Windows World Open booth. You'll also get free admission to the conference. Plus a private reception in your honor. If your application wows the Judges, Bill Gates will pr

ally present you with a trophy at the prestigious Windows World Open Awards Ceremons.

COMPLITERWORLD Microsoft.

IR WINDOWS WHEED

Co-Spornored by

FORTUNE

And Ell Borland

COGNOS

WALL

So send us your brainshild by midnight famous 26. Who knows? You may walk off stage with the

Call the Windows World Open toll-free her (800), 829-4143 to receive your official entry bit.

WINDOWS WORLD OPEN

The Bindow Keld Open Sinn. So contains all details and relie for Bartiettet. Content is raid where positioned by low the partition accuracy. \$0.000.1 mode of Normal Conjunction and Trades of Normal Conjunction of STILLIBEAL CHOSEN, Sec.

Companies in this issue

Page number refers to page on which story begins

	Domerq Importers, Inc
terton Technology Corp	E
Amend Vetwork	Electronic Data Systems Corp. 16,73,122
	EMC Corp
llamo Rott A Car. Inc	Epoch Systems, Inc
Utserics Financial 114	Extra Corp. N
izelahi Corp. 60 imerican Airlines 73	
merican Automobile Association	Federal Suress of Investigation
	Federal Reserve Bank of Minneapolis , 100
INSCO+RE Systems, Inc. 14 spollo Computer Inc. 16 spollo Computer Inc. 6,4,16,36,24	Federated Department Stores
spoilo Computer Inc	Federated Systems Geosp
opper Computer, the	FFE Software, Inc. 76 FileNet Corp. 6 Fituneital Executive Institute 81
SK General Inc. N.St.	FileNet Corp
opper computer title 41.86.122 SSK Green, inc. 8.51 boymetrix Corp. 73 VT&T 04.60 Information Solutions 16.54 Utachmark Corp.	First Image Wanagement Corp. 77
DURSTATV	Ford Motor Co
T&T Global Information Solutions 18,54	Forrester Research, Inc
Machinate Corp. 14 Va Boo Pain. 64	
atomotive Testing Laboratories	Fundation Microsystems, Inc
xon Networks, Inc	
0	Frost & Sullivan Market Intelligence 30
idin & Co	Frye Computer Systems, Inc
unata	Fulrum Technology, Inc. 51
	G
leil-Northern Rosenrch 4	Gartser Group, Inc 14.50
lell-Northern Bosesreh 6 lellSouth Corp 30	GE Plastics 101
io Rad Liboratories, Inc. 10 Its Strategic Decisions 6.30 MC Corp. 94	General Magic, Inc
IS Stratege Decisions	General Motors Corp 81
Mr Software, ite	Generalisa Systems. Inc
ish Hernzek and Newman, Inc. 57	Generation Systems Inc. 27 Goldman Sorbs, Inc. 27 Group One Lid. 3
AW Software, for 68 solid Bermark, and Newman, Inc. 57 sovie & Rabbuge, Inc. 88.94 sortand International, Inc. 73,122 souton Edition Co. 57 variance Technologies, Inc. 61	Grunman Dain Systems 5
orland International, Inc	Grunman Dain Systems
oston Edison Co	
	Hammersly Technology Partners 54
Prohibayen National Laboratory	Heirae Curtis Industries, Inc. 101
Rasiness Research Group	Help Systems, Inc. 61 Hewlett-Packard Co. 61629 2429 51
ionicens Transformation	Hewlett-Packard Co 6,16,29,24,39,31
lessurces, Inc	5661,64.00,76.87.86.94,101,122
- (Hitarbi America Ltd
mbletren Systems, lor 38, NC 94, 121	Hitarbi America Ltd
abletron Systems, Inc SA,NC p4, 121 ablevision System Corp	Hitsehi America Ltd. 89 Howard Ruban Associates 96 Harwitz Consulting. 73 House Dairy Co. 16
abletron Systems, Inc	Hitsehi America Ltd. 89 Howard Ruban Associates 96 Harwitz Consulting. 73 House Dairy Co. 16
abletron Systems, Inc	Hitsehi America Ltd. 89 Howard Ruban Associates 96 Harwitz Consulting. 73 House Dairy Co. 16
abletron Systems, Inc	Hitsachi America Ld. 90 Howard Robin. Associates 98 Harwitz Consulting 72 Hygela Dairy Co. 95 HRM 1,1424-29-41,51-61,54
abletren Systems. Ser. 38,87,94,121 inhberbison System Corp. 6 nashridge Technology Partners. Inc. 114 ameiot Capital 122 andie Corp. 94 anne@Capital Management 121	Historia Lad 91
mbletreen Systems. Inc	Historia Lad 91
abletten Systems, inc	Blanch America Ltd. 9 1 1 1 1 1 1 1 1 1
abletera Systems for SNS-9A [22] mishelwiso Systems Corp. 6 mashridge Technology Partners, inc. 114 markel Copy. 9 12 markel Copy. 9 14 markel Copy. 9 15 markel Copy. 9 17 markel Copy. 9 17 markel Copy. 9 18 ma	Hillmark Americas Lad. Briward Dishin Associates 98 Barwikz Ossosking 77 Briggets Davry Cu pt 1834 11-12-2-28-41-51-61-54 BSM Wildson Research Center 98 Briggets Davry Cu pt 1854 Wildson Research Center 98 Briggets Davry Cu pt 1854 Wildson Research Center 98 Briggets Davry Cu pt 1854 Wildson Research Center 98 Briggets Davry Cu pt 1855 Wildson Research Center 98 Briggets Davry Cu pt 1856 Wildson Research Center 98 Briggets Davry Cu pt 1857 Wildson Research Center 98 Briggets Davry Cu pt 1857 Wildson Research Center 98 Briggets Davry Cu pt 1857 Wildson Research Center 98 Briggets Davry Cu pt 1857 Wildson Research Center 98 Briggets Davry Cu pt 1858 Willson Research Center 98 Briggets Davry Cu pt 1858 Willson Research Center 98 Briggets Davry Cu pt 1858 Willson Research Center 98 Briggets Davry Cu pt 1858 Willson Research Center 98 Briggets Davry Cu pt 1858 William Pr 1858 W
abletren Systems, Inc	Hillmark Americas Lad. Berward Dishir Associates 98 Barwilz Constalking 77 Bygyta Dany Cu IBM 11424 284 15169 54 IBM 68.5 157 9654 125 IBM Wildson Research Center 12 Innet Gysters, Inc. 22 IBM Wildson Research Center 2
abletera Systems for SNS-9A [22] mishelwiso Systems Corp. 6 mashridge Technology Partners, inc. 114 markel Copy. 9 12 markel Copy. 9 14 markel Copy. 9 15 markel Copy. 9 17 markel Copy. 9 17 markel Copy. 9 18 ma	Hillmark Americas Lad. Berward Dishir Associates 98 Barwilz Constalking 77 Bygyta Dany Cu IBM 11424 284 15169 54 IBM 68.5 157 9654 125 IBM Wildson Research Center 12 Innet Gysters, Inc. 22 IBM Wildson Research Center 2
mbleten Systems. Inc	Billachi America Ltd. 10
subleton Systems. Inc	Billachi America Ltd. 10
mbleten Systems. Inc	Billachi America Ltd. 10
unkleren kypianen, her 30x524 L21 sattelsia Picturelung Partnere, he 113 sattelsia Picturelung Partnere, he 114 sattelsia Picturelung Partnere, he 124 sattelsia Picturelung Partnere, he 126 sattelsia Picturelung Partnere	Black heerica Lid. 80 Beaued Brinks Association 98 Beaued Brinks Association 98 Brinks A
anktern hypiaena. Im. — 30x524 L21 ankterian tystemic (verp. — 80. — 80x524 L21 ankterian tystemic (verp. — 80. — 11 ankterian tystemic (verp. — 80. — 11 ankterian tystemic (verp. — 80. — 11 ankterian tystemic (verp. — 10. — 11 ankterian tystemic (verp. — 12 ankteria (verp. — 12 ankteria (verp. — 12 ankteria (verp. — 13 ankteria (verp. — 14 an	Billach America Lid
substream Sprainen. Inc. 30x524, L12 substream S	Blanch Kenerica Lid. 50 Blanch Kenerica Lid. 50 Blance Biblina, knowlaters 50 Blance Biblina, knowlater 50 Blanch Biblina 11, 12, 20, 24, 13, 65, 65, 65 Blanch Biblina 11, 12, 20, 24, 13, 65, 65, 65 Blanch Biblina 11, 12, 12, 13, 14, 15, 15, 15, 15, 15, 15, 15, 15, 15, 15
substream Sprainen. Inc. 30x524, L12 substream S	Blanch Konerica Lid. Marcha Canadaga. Flavorita C
substream Sprainen. Inc. 30x524, L12 substream S	Blanch in Secrica Lid. 10 10 10 10 10 10 10 1
anderen Sprainen. Im. 30x734, 121 March 120, 120, 120, 120, 120, 120, 120, 120,	Blanch in Secrica Lid. 10 10 10 10 10 10 10 1
anderen Sprainen. Im. 30x734, 121 March 120, 120, 120, 120, 120, 120, 120, 120,	Black Morein Lid. Septial Country Co. 1 152 Dept Dept Co. 1 152 D
anderen Sprainen. Im. 30x734, 121 March 120, 120, 120, 120, 120, 120, 120, 120,	Black Morein Lid. Service Country Topic Country
deletion Serona. Inc	Black March Ldd Chrysler Country The Chrys
adderen ferenas her	Black March Ldd Chrysler Country The Chrys
addren dispensa. Inc	Black March Ldd Chrysler Country The Chrys
addren dispensa. Inc	Black March Ldd Chrysler Country The Chrys
addren dispensa. Inc	Black March Ldd
address fremen ber SKPAEL in Australia der SKPAEL in Australia der SKPAEL in Australia der SkRAEL in A	Black March Ldd
address fremen ber SKPAEL in Australia der SKPAEL in Australia der SKPAEL in Australia der SkRAEL in A	Black More Left
address femans for SNSALT statements of the SNSALT statement of the SNSALT sta	Black March Ldd
addren dispensa. Inc	Black March Ldd Chrysler Country The Chrys

M	
V B Finter Associates Ltd 61	
Management Nysterus Integration 53 Martin Manatta Pherimains 11	
Martin Marietta Electronics	
Maylerwoft, Isr 46	
Manuel Systems Corp	
SICI Communications Corp	
McKinsev&Co	
Merry too Round Enterprises 20 Meta Group Inc	
Metrics Network Systems, Inc	
MISSAllance 8	
Nichigan National Rank 4 Nicrografic (eep 1	
Nobile-Comm	
Motorola Inc	
Must Software International	
N	
National SemiconductorCorp 51	
N/R Corp	ļ
NEC Terhnologies, Inc	
NetManage, lac	,
Network Application Technology, Inc	
Network General Corp. 94	,
NetWorth Inc. 14 Network Inc. 91	
Network Inc	
New Jersey Institute of Terhaology	
New York Assembly	
Navel Inc 1,4,14,16,32,54	
57.50.89.54.422	
0	
Objective Systems Integration	
Ogdes Services Corp	١
GK Industries, Inc	
Open Software Foundation	į
Oracle Corp 16,29,51,32,54,114,122	١
	Į
Paradise Software, Inc 54	
	ı
Pransylvania Star Shaid	
Prevenine Systems Inc. 94	,
Performance Computing	
Philips Electronics NV 56	
Powersoft Curp. 30,73,101	1
	,
	1
,	
Raptor Systems, Inc	
Reliance Electric, Inc	١
Bemedy Corp	
Roudway Expersa 80 Royal Automobile Club 16	
- 10	
Superor International Corp. 101	۱
Separation and Exchange Commission 30	

i	ns
ı	Sha
•	Shu
	SoftKey laternational, Inc
3	Softkey Software Products, Inc
	Software Productivity Research, Inc
	Solony America, Inc. 107
ï	Software Publishing Corp. 12 Software Publishing Corp. 12 Southwest Red
6	Spectrum Technologies, Inc
1	Spinnaker Software Corp 66,121
,	Standish Group International, Inc 64
	Sterring Software, Inc
:	Similar Compaign Inc. 64
í	Subura of America, Inc
	Sun Microsystems Computer Corp 54
	Sun Microsystems, Inc
	SunConnect, Inc
	SupPro
	Superior industries international inc of
	SuperNar Technology, Inc
i	System Software Associates, Inc
	Systems Center, Inc
	Tundy Corp
	Tangoni Computer Resources 107
	Stratestes Corp. 96
i	Technology Strategies Group
1	Tektronix, Inc
1	Texas instruments, inc
	The Maloff Co.
	The Port Authority at New York
	Predatology Instrument Strategies Corp. 39 Technology Strategies Group 24 Technology Strategies Group 24 Tecknology Strategies Group 24 Tecknology Strategies Group 24 Tecknology Group 25
	The lunker-Group 64
	The Santa Cruz Operation 64 The harker Group 64 Tivoh Systems, Inc. 22,94 Toolst Systems (inc. 22,94 Toolst Systems (inc. 22,97 TOM Group, 77
	Tonstmasters international
	TQM Group77
	Transare Corp
	TQM Group. 77 Transact Corp. 24 Tri-Star Computer Corp. 46 Trusted information Systems, Inc. 1
	Trues and manufacture of the control
ŀ	U.S. State Department
	U.S. State Department
	Unised Parcel Service, Inc. 10
	Unix System Laboratories, Inc. 10
	V
	v
ı	ViewStar Usep. 6.8 Villard-Lindway & Co. 107
	Villard-Lindsay & Co 107
	VINESOR, ERC
	W
	Wind Date Inc 31
	Wal-Mart Stores, Inc
	Walker Richer & Quant. 16 Wal Data, Inc. 41 Wal Marx Stores, Inc. 81 Wal War Stores, Inc. 81 Wang Laborateries, Inc. 85 Wang Laborateries, Inc. 85 Whitpsoil Corp. 6 Worlder on Group (Group, Inc. 85 World Prefect Corp. 1, 36 World Prefect Corp. 1, 36
	WellBert Commanications, Inc
	warrpoort orp
	Wordflooded Com. SS
	WorkGroup Technologies, Iac. 20
1	
	Worldtalk Corp 8
	×
	X Soft
	X/Open Inc. 179



OF AFTER THE COMPANY ACPOINTS RECORD REVIEWS AND ORGANISMS

SoftKey: gazelle or lummox?

SoftKov International Inc (SKFV) recently rose from the or has of What Stee International Inc. Spinnelper Softwaler Corp. and SoftKey Software Products. Inc.

The three companies completed a three-way merger on Peb. 4. WordStar's emacinted stock underwort a 1-for-10 reverse stillt to ereate Soft Key International shares. Holders of Sonnaker and old SoftKey shares traded up.

The question for the investment community is whether the possible rentity will be a consolul dust or a big out WordStar and Spinnaker have both strumfed financially for a resmber of years and have suffered from hadly eroded stock prices. SoftKey Software Products has a better track

record, but some outstanding questions remain about its growth potential, according to one financial analysis The combined company will pull in an estimated \$129 milliop in revenue in 1994. That easily makes the new Soft Key one of the biggest players in the consumer and small busi-

pess software market. Scott Smith, president of Camelot Capital in Greenwich. Cons., said considerable economies of scale will result Soft Key International has closed operations on the Wines

Coast and in Canada and Florida. The company is now based in Cambridge, Mass., and is organized around the old Spinnaker Software infrastructure, according to company officials. Ron Powner, who was brought in several years ago to reverse WordStar's sliding fortunes, will serve on the board of directors but will not be involved in day-to-day on-

SoftKey will rely on its broad distribution channels and its variety of products for future growth and profitability. SoftKey plans to produce more than 100 new titles in the

"They have some real critical mass now," Smith said. "Also, the consumer software market is very bot, and you won't find a lot of communics trading at less than 15 times carnings' as is the case with SoftKey International. SoftKey

closed Thursday at 13

Others said they think the outlook is less than rosy "I don't think people will be interested in the stock," said Carlo Cannell, president of Cannell Capital Management in San Prancisco, "Unless there is a timely demonstration of top-line growth, you have an old shell that is strong internationally but battered domestically. The story has gotten a little old." - Derek Stater

Dice	52 mps	èes		Pus.111	In the St. Act County County	tec
ter	and and all the	-1.01	Province Services		04116	63
			WHEREFORCEM.			
275	65.00			34.18		60
on.			fors. Communication continue	1.56		0.0
disc			Ramon Systems Inc.	16:11	230 25	on:
975 875			Stor Property Cook	55.75	0a1 1.1	010
R15	1700		Studential and Streets	57.50	670 14	671
95	18.25		PRODUTEDLY TOCHROLIES	1175	100 65	en.
			Cratester Contractions			
enc.						
27.0						03
gtc.			Debries Sestions (et) Inc.			
dec			DISCOMMUNICATIONS	59.75	300 17	OH
070	9.25		fugetown ton's rec	4 70	0.W 19	ġ1
010	2,75		General Tourses during the (E)	1.25	0.25 10.7	OH
975	7 de		Secretar Communications Secretaria Secretarians (M)	17.13		01
852	313		Control (Antennes on South	243	343 249 608 23	01
AND.	315		675 core 32	12.66	636 11	01
	25.88	12.75 72.16	ET Cour III	65.13	250 11	01
975			RC/Committee/properties	27.56	256 -24 563 55	DI
670	5.76		WITCHISHOP CATCHER	5.00		01
910	17.75		British Color		671 -115	87
975	16.75		Orne of Dark Street and Dark	-53.75	250 -057	01
ORC	213	275	Production Committee and Pro-	1 9-50		
910	32.25	745	Pichardin Comp.	15.00	156 -53	
BYS.		141	Protection Science (married)	1.75	276 43	
875		14.75	Scorner streeth, Com	76 67	130 -11	***
875		94.90	Speed Code	34,11 17.00	990 00	01
015	20.73	12.50	Snapana Brosponinas Com-	15A2	175 50	01
		58	STREET, STREET	24.00	420 11	01
970					875 41	
						300

										64.00		
						105				18.50		
						010						
						010						
						270						
						A50				12.50		
	4175	Coanat Compute Coor of	90+2	10	17	075	92 D	29.00	2-15-W.	78.07	341	104
ä	15.50	Boy Common Com	30.75	-6.13	-0.6							
ä	19.75	Service 2000 Pm.	20.75	-2.12	91							
		Street Stocker	50.00	5 33	24							
ĸ.		Source Statement	24.75						Agents ag 5 years Conventioned in			
ю	18.75			9.25	-19	1072	2023	10.50		1005		

S			Special Control Contro			
ьч	6.36	256	Store authorities (19	266	415	3.6
10	go Syria	45			ųP.	Age:
税的价价的的价价价价价价价价的的	6.25	4.75	Receive Comm	0.37	477	*40
	235		Councis County/ED		47)	415
				75 00 9.75		
					9.30	-52
	49.35		Service Engineering Code, 63	29.75	6-13	- 64
			Manag Coop.	4625		22
	60.00		day .	5313	1 99	
						90
			Michigan Participation (19)	15000	3.60	1.0
			40 Timps	15.25		
			Patriciae Compres	11 00	9-59	11
			Plante Transactor	94.80	6.75	
			Scourse compression.	15-65	9.25	1.6
				5 90		
			Scharge Communication.			44
			Sample Course state.	23.70	0.25	1.6
			Techna System	22.75	2.75	114

15.11	1.44	Georg Care (M)	1L48 8.25 L7
***			Delection
37.00	10.75	Artel Stillastel.	2630 075 27
5.00		Anchora Sompany Inc.	1875 -256 -128 440 250 50 839 041 43
		Ask Cowmunity Systems	
		Surrector Inc.	5347 150 7.0
			32.86 -1.75 -71
			13.95 -0.25 -1-9
		BULS OF THE BULL BUT SETTINGED THE BOOLE & BRADANE BOOLE & BRADANE BOOLE & BRADANE CONTINUED TO CONTINUED TO	213 939 3.7
		Councillation of the Councillation of the Councillation of the Councillation of Councillation of Councillation of the Councillation of	17.30 -0.00 5.5 -6.17 -0.11 -3.7
			4.15 611 3.3
			4,90 0.13 3.2
			25:50 1:50 6:0
			1017 647 57
		Frage Transporter (1) Frage Transporter Group Tr	630 F11 1A
			2825 925 22

			99.0	
			-15	
			4.8	
			4.0	
			4.3 6.0 9.4	
			45	
			43	
			0.9	
			-5.0	
			3.7	
			4.7	
			-09.0	
			1.4	
			2.4	
		9.75		
	Comment Commen	100		

	W.F.				UP FAIR
SKKKKSSKKSKKKKK	21 15	3430	Segre on Miles Ley 1989	19.70	9.05 11
	4.75	7.36	Anni con tel.	138	E25 - 8.9
					015 02
				21.75	4.61 -28
	24.25	13.86		22.30	6.04 01
	34.73	8.76	Communications and 20	14.85	0.10 2 8
		17.50			5.54 79
		\$75	Copy and Data Say state out.		0.40 60
					0.50 4.8
					1.11 3.7
ANNA SANAAN	2190				175 64
		12.60	terts cropper Ecocompacts		166 14
					611 65 .
	97.25	21.47			1.09 3.1
	69-50	29.00	Firmmum expells recess (40)	~46.50	0.75 16
	28 10	11.30	Stitler	29.50	625 -18
	27.15	17 80			-0.76 -1.5
	1261				0.30 6.7
	38.75		Sorrants Sincritical Inc.	15.75	-050 21
ĸ.	42.75	24.00	Survices Balla Services	39.75	6.56 1.7







everything extremely complex. for a day would allow a look at the world through the clean mind of a child with unhiased thoughts, unaffected by the ever-present influence of meaningless pressure. Maybe then we might see how things really are and adjust our perspective

Not a had wish."

DO YOU HAVE A RAYORITE TRADE SHOW STORY! WE WOULD LIES TO HEAR IT. CONTACT LISA DANDACH AT (SOS) 343 6424 1215
OR FAR AT (SOS) 875-8931. If we use your story, wi'll send you a get (but friends lished a contact number).

The 5th Wave by Rich Tennant



Inside Lines

Can you get to the next generation of smart networking without scrapping the old one?

Right now lots of windors are selling next-generation smart switching hubs But they all have one minor problem: What they sold you before won't work with their new technology

With Chincom, it's a different story

Because to us, all this new technology is technology we pioneered years ago. We've been building switching hobs as long as we've been building hubs. So if your network has been built around

Chipcom products. you've already bought a big chunk of its

will require.

upward-compatible. So not only do you save substantially by not scrapping your existing modules. you can ungrade where and as needed

omblem Every ONline

module is completely

And unlike hub mak-

For example, if you're running a

Concentrators, and you need to ungrade

all or part of it to our next-generation

ONcore "Switching System, there's no

network on our ONline" System

ers who grew up struggling with departmental LANs, vast enterorise-wide networks don't faze us. We started out building connectivity devices for huge networks, so we built scaleability and

With Chipcom, you can.

comprehensive network management into our architecture right from the start

Call us at 1-800-228-9930 for complete information on the ONcore Switching System.

Or call us at the same number to inquire about Chipcom's worldwide seminar series on enterprise-wide networking. It's being held in more than 50 locations, so call to learn where and when we'll be in your region.





future. And whatever

technology that future



We'll work with Apple, IBM, Microsoft, and if we have to, your Uncle Fred.

We're extremely flexible. Not only will we work owith Mr. Couch Points, but a ROLM phone system will also work in viribilly any PC. mainframe or LAN environment. Environment. Environment. Environment.

and Tandem. Just to name a few.

Why are we so sociable? You see, at ROLM, we have always believed in interoperability and global standards. So you'll get the

invest in communications technologies.

Take Nissan Motor Acceptance Corporation. for example. To help them handle over two million calls each month, they installed a new ROLM phone system with a voice response unit (VRU)

most out of every single dollar you

that was integrated with their IBM mainframe. Now, over 30 percent of all their calls' are expedited by the VRU and their call times are actually 20 percent shorter. And as a

combined technology, interaction with all their dealers and customers has been greatly enhanced.

If you'd like to see how we've been able to help companies just like yours get more from their phone system, call the number below. We'll be glad to send you a compendium of success stories that will show you how it can pay to work with just about any one in the world.

Yes, even good of Fred

